THE LANCET.

No. 4283. Vol. CLXIX. LONDON, SATURDAY, SEPTEMBER 30, 1905. [Pp. 120+40.

CONTENTS.

A CLINICAL LECTURE on Three Cases of Tabes Dorsalis. Delivered at the Medical Graduates' College and Polyclinic on April 11th, 1905, by C. O. HAWTHORNE, M.D. Glasg., M.R.C.P.Lond., Examiner in Medicine and Clinical Medicine in the University of Aberdeen; Physician to the Central London Ophthalmic Hospital; Assistant Physician to the North-west London and Royal Waterloo Hospitals.—(*Illustrated*) 939

ORIGINAL ARTICLES.

The Circulatory and Anatomical Abnormalities of an Acardiac Foetus of Rare Form. By MALCOLM CAMPBELL, M.A., M.B., Ch.B. Edin., F.R.C.S. Edin., Clinical Gynæcological Tutor, Royal Infirmary, Edinburgh; and H. D. SHEPHERD, M.B., Ch.B. Edin., F.R.C.S. Edin., Clinical Surgery Tutor, Royal Infirmary, Edinburgh. (*Illustrated*) 941

Some Observations on 26 Consecutive Cases of Gastro-Enterostomy. By A. R. ANDERSON, F.R.C.S. Eng., Surgeon to the General Hospital, Nottingham 944

A Case of Empyema in the Posterior Ethmoidal Labyrinth with Paralysis of the Conjugate Movements of the Eyes and Bi-temporal Limitation of the Visual Fields. By WILFRID GLEGG, M.D. Edin., M.R.C.P. Edin., Senior Assistant Surgeon to the Birmingham Ear and Throat Hospital; and PERCIVAL J. HAY, M.D. Edin., late Resident Surgical Officer to the Birmingham Eye Hospital.—(*Illustrated*) ... 947

The Notification of Pulmonary Tuberculosis in Blackburn. By ALFRED GREENWOOD, M.D. Vict., D.P.H.R.C.P.S.I., Medical Officer of Health of Blackburn 948

Complete Extirpation of the Penis for Epithelioma in a Hawaiian, aged 25 years; Recovery. By EDWARD H. ARMITAGE, M.D. Durh., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Cantab.—(*Illustrated*) 949

Note on Two Interesting Cases of Imbecility with Epilepsy. By R. G. WHITE, M.A., B.Sc., M.B. Glasg., Pathologist, Glasgow District Asylum, Woodilee, Lenzie, N.B.—(*Illustrated*) 951

The Difficulties and Dangers of the Mastoid Operation, the Vicissitudes of Convalescence, and the Ultimate Result to the Patient. By CHARLES A. BALLANCE, M.S. Lond., F.R.C.S. Eng., Surgeon to St. Thomas's Hospital; Examiner in Surgery at the University of London, &c. 952

A Case of Mitral Incompetency and Ascites Treated with Apocynum Cannabinum. By A. J. B. DUPREY, M.R.C.S. Eng., L.R.C.P. Lond. 955

The Influence of Nasal Obstruction on the Form of the Face. By W. B. PARSONS, M.R.C.S. Eng., L.R.C.P. Lond., Clinical Assistant at the City Orthopædic Hospital.—(*Illustrated*) 956

Sanatoriums for the Poor and the Eradication of Consumption. By RONALD CAMPBELL MACFIE, M.A., M.B., C.M. Aberd., Medical Superintendent, Sidlaw Sanatorium, by Dundee 958

A Note on the Occurrence of a Spirillum in the Blood of Patients suffering from Secondary Syphilis. By Surgeon G. M. O. RICHARDS, R.N., and Surgeon LAWRENCE HUNT, R.N. 962

Secondary Effects upon the System which may be produced by Chronic Enlargement of the Tonsils. By H. BELLAMY GARDNER, M.R.C.S. Eng., L.R.C.P. Lond. 963

The Essential Conditions of Steam Disinfection. By WOLF DEFRIES, B.A., M.I.Mech.E. .. 964

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Case of Acute Poisoning by Eucalyptus Oil. By HENRY S. TAYLOR, M.D. Aberd. 963

Two Cases of Poisoning from the Application of Atropine to the Eyes. By PERCY B. SPURGIN, L.R.C.P. Lond., M.R.C.S. Eng. 964

A Case of (?) Tuberculous Meningitis Treated with Iodoform Ointment. By HENRY C. WILSON, L.R.C.P. Irel., L.F.P.S. Glasg. 964

A MIRROR OF HOSPITAL PRACTICE.

ST. GEORGE'S HOSPITAL:
A Case of Acute Non-rheumatic Arthritis Treated with Antistreptococcic Serum; Rapid Amelioration. (Under the care of Dr. H. D. Rolleston.)—(*Illustrated*) 965

BRISTOL GENERAL HOSPITAL:
A Case of Extensive Polycystic Disease of the Kidneys associated with Cystic Liver, Illustrating Certain Points in the Causation and Treatment of this Condition. (Under the care of Dr. Ernest W. Hey Groves.)—(*Illustrated*) 966

GOVERNMENT HOSPITAL, ALEXANDRIA:
A Case of Subpericranial Dermoid. (Under the care of Mr. A. Webb Jones.)—(*Illustrated*) 967

REVIEWS AND NOTICES OF BOOKS.

International Clinics. Edited by A. O. Kelly, M.D., with various Collaborators. Vol. II. 968

Diseases of Women. By E. C. Dudley, A.M., M.D. Fourth Edition 968

The Rational Treatment of Running Ears. By F. Faulder White, F.R.C.S. Eng. 969

The New Zealand Department of Agriculture: Division of Veterinary Science 969

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India: Snake Venoms in relation to Hæmolysis. By Captain G. Lamb, M.D., I.M.S. 969

The Journal of Physiology 970

NEW INVENTIONS.

A New Peritoneal Catch and Holder.—(*Illustrated*) 970

An Electrical Apparatus for Simplifying the Examination of the Throat and the Nose.—(*Illustrated*) 971

LOOKING BACK.

(From THE LANCET, Saturday, Sept. 29th, 1827.)

Aneurism of the Carotid, in which the Artery was tied beyond the Tumour. By Dr. Bush 971

LEADING ARTICLES.

SANATORIUMS FOR THE WORKING CLASSES 974

EXPERIMENTS ON CRIMINALS ... 975

A STORY OF SANITARY INEPTITUDE 976

ANNOTATIONS.

The Difficulties of Medical Men in relation to Cases of Diphtheria 977

Sight Testing 978

Strangled by Red Tape 978

Herb Calomel 978

Breech Presentations 979

Street Noises 979

Child Study 980

Poisoning due to Inhalation of the Fumes of Nitric Acid... 980

The Ant and Formic Acid 980

School Children under Five Years of Age 980

Resuscitation by Manipulation of the Heart 981

Confessions Obtained from Persons Drugged 981

The Barometer and Anæsthetics 981

The Source and Constituents of Chaulmoogra Oil and Hydnocarpus Oil 982

The Earthquakes in Calabria ... 982

The Medical Man, the Coroner, and the Pathologist 983

Failure to Notify a Case of Typhus Fever 983

VITAL STATISTICS:
Health of English Towns 989
Health of Scotch Towns 990
Health of Dublin 990

SPECIAL ARTICLES.

Venereal Disease in the Army... 972

Medicine and the Law 973

Epidemic Cerebro-spinal Meningitis at Irthlingborough ... 973

The Annual Report of the Medical Officer of the Local Government Board.—[Second Notice] 988

The Alverstone Memorial Hospital 989

The Services: The Royal Military Hospital, Stoke, Plymouth 990

The Evolution of the Pure Consultant 986

Notes on Medical Matters in Norway 997

Liverpool 997

Leeds 998

Wales and Western Counties Notes 998

Scotland 998

Ireland 999

Paris 999

Berlin 1000

Constantinople 1001

Canada 1001

CORRESPONDENCE.

The Motor Nuisance on the Riviera (Dr. D. E. Anderson).. 991

Angina Pectoris and Allied Conditions (Dr. Francis Hare) 991

Research in Medicine (Mr. Walter B. Priest) 992

Breech Presentations (Dr. Robt. E. Roberts) 992

Inspection of Nursing Homes (Miss C. J. Wood) 992

The Technique of the Examination of the Sputum for Tubercle Bacilli (Dr. David Anderson-Berry) 992

The Royal Portsmouth Hospital (Mr. J. S. Neil) 993

The Causation of Senile Decay (Dr. Harry Campbell) 993

The Boy and his School (Mr. Robert L. Leighton) 993

Varicocele—What of It? (Mr. Edred M. Corner, Mr. Harrison Cripps) 993

Is Alcohol Excreted by the Skin? (Mr. David Harris) ... 994

The Spa Treatment of Circulatory Disorders 994

Sir Thomas Browne Memorial (Rev. F. J. Meyrick, Mr. Frederic R. Eaton) 995

Naked Lights in Operating Theatres 995

Volunteer Medical Officers 995

The Treatment of Urticaria ... 1005

The Medical Entente Cordiale (Dr. Leonard Mark) 1005

Death in Judicial Hanging (Dr. Preston King) 1005

The Notification of Diphtheria.. 1006

The Corking of Medicine Bottles 1006

Ambulance Lectures 1006

MEDICAL NEWS.

Pass-list of the University of Durham 1002

Donations and Bequests 1002

The West of Scotland Convalescent Seaside Homes 1003

The Care of School Children ... 1003

The Treatment of District Medical Officers 1003

Appointments.—Vacancies 1003

Births, Marriages, and Deaths.. 1004

Notes, Short Comments, and Answers to Correspondents.. 1004

Medical Diary 100

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX.

MEDICAL AND OTHER BOOKS AND PUBLICATIONS.

COVER.

PAGE

ADLARD & SON:—
Lingard .... Burnett 1
Shaw..... Essays on Insanity 1

BAILLIERE, TINDALL & COX:—
Brouardel & Bunham .. Death and Sudden Death 1
Findley .... Diseases of Women 1
Hinder ..... Clinical Surgery 1
Lake ..... Diseases of the Ear 1
Munro ..... Manual of Medicine 1
Shaw-Mackenzie. Etiology and Treatment of Cancer 1

BALE, SONS & DANIELSSON:—
Worth ..... Squint..... 1

CHURCHILL, J. & A.:—
Candy ..... Chemical Analysis 1
Hale White .. Materia Medica 1
Marshall .... Materia Medica 1
Starling .... Physiology 1

CONSTABLE & CO.:—
Battle & Corner .... Diseases of the Appendix Vermiformis 1
Laumonier.. New Methods of Treatment 1
Wright..... Anti Typhoid Inoculation..... 1

GLAISHER:—
Owens ..... X-Rays 1
Savill ..... Neurasthenia 1

PAGE

LEWIS:—
Suckling .... On Periodical Headache or Migraine 1
" .... On Epilepsy 1
" .... On Movable Kidney 1
" .... Treatment of Diseases of the Nervous System .. 1
" .... Diseases of the Brain and Spinal Cord 1

PENTLAND, Y. J.:—
Berry..... Manual of Practical Ophthalmology 1
Cunningham. Text-book of Anatomy
" Manual of Anatomy.... 1
Gibson & Russell.... Physical Diagnosis 1
Muir & Ritchie.... Manual of Bacteriology 1
Thomson & Miles .... Manual of Surgery 1
Waring .... Operative Surgery 1

SAUNDERS & CO.:—
Saunders' Important Books 1

MEDICAL LIBRARIES, &c.:—
Davidson—Sight-Testing for the G.P. 1

APPLETON, S.:—
Bryant..... Operative Surgery 7
Buttle ..... Medical Diagnosis..... 7
Holt ..... Diseases of Infancy 7
Osler ..... Practice of Medicine 7
Williams.... Obstetrics 7

BAILLIERE, TINDALL & COX:—
Barwell .... Lateral Curvature of the Spine, &c. 6

BAILLIERE—(Continued).
Bigg ..... Constipation 8
De Santi .... Malignant Diseases of the Larynx..... 8
Edwards .... Carcinoma of the Rectum 8
Harman .... The Conjunctiva in Health, &c. 8
Lamb ..... Examination of the Throat, Nose, and Ear 8
Mayo-Collier Mouth Breathing 9
" Chronic Progressive Deafness 9
Turner ..... Appendicitis 9
Vincent .... Nutrition of the Infant 9

JASSELL & CO.:—
Herman .... Diseases of Women 9
Morris, H. .. Surgery of the Kidney and Ureter 9
" .. Injuries and Diseases of Genital, &c., Organs .. 9

CHURCHILL, J. & A.:—
Sutlin ..... Malignant Disease..... 6
Cripps ..... Diseases of the Rectum 6
" ..... Cancer of the Rectum.. 6
West ..... How to Examine the Chest..... 6

CORNISH BROS. (BIRMINGHAM):—
Sawyer, Sir J. Practical Medicine 9
" Insomnia, &c. 9

GLAISHER:—
West..... Granular Kidney, &c. .. 9

GRIFFIN & CO.:—
Bury ..... Clinical Medicine 6
Landois .... Human Physiology 6
Taylor ..... Applied Anatomy 6

GRIFFIN—(Continued).
Von Jaksch.. Clinical Diagnosis 6
West ..... Organs of Respiration. 6, 9

KEGAN PAUL & CO.:—
Taylor ..... Diseases of the Eye 6

LEWIS:—
Roberts, F.T. Theory and Practice of Medicine 9

MEDICAL PUBLISHING CO.:—
Lane ..... Chronic Constipation .. 6

PUBLICITY, LIMITED:—
Reinhardt .. The Consumptive Poor of England..... 9

RENSHAW:—
Green ..... Pathology, &c 9
Jamieson..... Index of Diseases 9
Wood ..... Appliances of Trusses 9

SAUNDERS & CO.:—
Anders .... Practice 5
Church & Peterson .. Nervous, &c., Diseases 5
Nothnagel's Practice 6
Starr and .. Physiology 5
Saunders' Year-Book 5

SMITH, ELDER & CO.:—
Keetley .... Orthopædic Surgery.... 6
" .... Gastric Ulcers 6
" .... Complicated Fractures 6

THE LANCET PUBLICATIONS .. 12

MEDICAL LIBRARIES, &c.:—
Behnke—Stammering 9
Institute of Hygiene—
The Hygienic Handbook..... 9

OFFICIAL AND GENERAL ANNOUNCEMENTS.

APPOINTMENTS VACANT:—
Aberdeen Royal Infirmary 78
Addenbrooke's Hospital, Cambridge.. 77
Bradford Corporation Waterworks Hospital 78, 79
Bradford Royal Infirmary 79
Brighton Throat and Ear Hospital .. 79
Central Midwives Board 77
Cheshire County Asylum, Macclesfield 79
City of London Hospital for Diseases of the Chest 76
Cornwall County Asylum, Bodmin .. 77
County Asylum, Rainhill 76
County Borough of Huddersfield 76
Dreadnought Hospital, Greenwich .. 76
Farrington General Dispensary 76
Guest Hospital, Dudley 79
Hampstead General Hospital 79
Hospital for Consumption and Diseases of the Chest, Brompton 76
Hospital for Women, Soho-square.... 79
Huddersfield Infirmary 77
Kent County Asylum, Maidstone 77
Leith Hospital 77
London Hospital 78
London Lock Hospital 77
London Throat Hospital, Great Portland-street 77
Loughborough and District General Hospital, &c. 77
Manchester Royal Infirmary 79
Middlesex County Asylum, Napsbury 76
Newcastle-upon-Tyne Union Workhouse 76
North Cambridgeshire Hospital, Wisbech 79
North Staffordshire Infirmary and Eye Hospital 76
Royal Dental Hospital, Leicester-square 79
Royal Ear Hospital, Soho 77
Royal Free Hospital, Gray's Inn-road 77
Royal London Ophthalmic Hospital... 77
Royal Sea Bathing Hospital, Margate 77
Samaritan Free Hospital for Women, Marylebone-road..... 77
Somerset Hospital, Cape Town 77
Stepping Hill Hospital, Stockport .. 76
St. Thomas's Hospital 77
Throat Hospital, Golden-square 79
Westminster General Dispensary 79
West Riding Asylum, Wakefield 76
Wolverhampton and Staffordshire General Hospital..... 78
York Dispensary..... 79

ASSISTANCIES, MEDICAL 84

ASYLUMS, HOMES, &c.:—
Ashwood House, Kingswinford 75
Bailey, Midhurst..... 75
Barham House 74
Barnwood House Hospital..... 69
Bedford House, Brighton 74
Bethel Hos. for Mental Diseases 74
Bishopstone House, Bedford..... 74
Box 70, Reading 74
Buntingford House Retreat, Herts .. 71
Camberwell House, Peckham-road .. 76
Capel Lodge, near Folkestone 76
Chapman, Banham Common 76
Clarence Lodge, Clapham-park 75
Coppice, The, Nottingham..... 69
Cotswold Sanatorium 72
Crookabary Sanatorium, Surrey..... 72
Dalrymple House, Rickmansworth .. 75
Denton Johns' Sanatorium, Parkstone 76

ASYLUMS—(Continued).
Dr. Sendcora 75
Dr. Hashleigh's Sanatorium, Darmoor 73
East Anglian Sanatorium, Mayland .. 73
Electrical Ozone and Light Treatment 73
Fairford Retreat, Gloucestershire.... 74
Ferguson, Barnet 74
Flower House, Catford 69
Grove House, Church Stretton 69
Grove, The, Catton, Norwich 69
Hadley Open Air Sanatorium, Ipsden 71
Haydock Lodge, Newton-le-Willows 70
Holgrave Hall, Norwich 74
High Shot House, Twickenham..... 74
Hitch, Mrs., Hollington 69
Home of Good Hope, Bournemouth .. 69
Home Sanatorium, Bournemouth 71
Invershiels Lodge Retreat, Colinsburgh 70
King Turner, Cheltenham 75
Lady Superintendent, Brighton 74
Lady Superintendent, Streatham 74
Lawson, Nordrach-on-Dee, Banchory 72
Leigh House, Warwick 74
London Fever Hospital 74
London Open - Air Sanatorium, Wokingham 72
Melbourne House, Leicester..... 69
Moat House, Tamworth 69
Moorcote Open - Air Sanatorium, Eversley 73
Nordrach-upon-Mendip Sanatorium.. 71
Northlands Retreat, Wandsworth 75
Northumberland House, Finsbury-park 76
Northwoods House, Winterbourne .. 70
Norwood Sanatorium 70
No. 107, Edinburgh 75
No. 440, L.O., Strand..... 76
No 4 6, L.O., Strand..... 74
No. 486, L.O. Strand..... 75
No 582 L.O. Strand 75
Ochil Hills Sanatorium, Kinross-shire 72
Overdale, Whitefield..... 69
Periton, Winchelsea 73
Plas-yn-Dinas, Merionethshire 71
Plympton House, South Devon 69
Rockmoor Open-Air Sanatorium, Colyton 73
Shaftesbury House, Formby..... 71
Slater, Teignmouth..... 74
Small Pox, &c., Hos., South Mimms .. 76
Springfield House Private Asylum, Bedford 69
St. Andrew's Hospital, Northampton 69
St. Luke's Hospital, N.C. 69
St. Mary's, Craven-street..... 74
Stone House, Canterbury 74
Stretton House, Church Stretton 69
Thundercliffe Grange, nr. Rotherham 74
Tower House, Leicester 69
Vale of Clwyd Sanatorium..... 73
Warneford Asylum, Oxford 69
West Malling-place, Kent 71
Whitmead Hill Sanatorium, Farnham 73
Woodford House, Exeter 69
Wye House, Buxton 69
Wyke House, Isleworth 69
Yarrow Convalescent Home, Broadstairs..... 70

COMPANIONS:—
Bazalet, Malvern..... 83
Lady Harley-court..... 84
L. L., Leatherhall-street 84
No. 2 7, L.O., Strand..... 85

FINANCIAL, &c.:—
Birkbeck Bank..... 76
Equitable Reversionary Interest Soc. 76

HEALTH RESORTS, BATHS, &c.:—
Aberystwith, the Biarritz of Wales .. 73
Bad Ems 74
Dunblane Hydro Establishment 74
Smedley's, Matlock 74
South Devon Health and Holiday Resort, Bishop's Teignton 73

HOMES, &c., WANTED:—
X. Y. Z., Maidstone 76

HOTELS:—
Barton Court Hotel, New Milton 83
Devonshire Hotel 83
Monsreux Hotel and Chalets, Belmont 83

HOUSE & ESTATE AGENTS:—
Bacon, Liverpool-street 83
Bedford & Co., Wigmore-street 82
Gregory, Temple 83
Hill, Southampton 85
do. 345, L.O., Strand..... 83
W. G., Old Broad-street 86
Lansdowne-road 82
Harley, Knightsbridge..... 85
82a, Portland-place, W. 83

LIFE & FIRE ASSURANCES:—
General Life Assurance Co. 76
National Provident Institution 76
Prudential 76

MEDICAL ACCOUNTANTS, &c.:—
Turner 84

MEDICAL AGENTS:—
Dr. Figé Hall 79
Lee & Martin 83
London Medical Agency..... 83
Manchester Medical Agency 83
Manchester Medical, &c., Association 83
Medical Agency 83
Needes, Herbert 83
Needes, J. C. 79
Orridge 83
Peacock & Hadley 83
Reynolds & Branson 83
Scholastic, Clerical, &c., Assoc. 84
Turner 83
Wilson & Son 83

MEDICAL SCHOOLS (LONDON):—
Charing Cross Hos. Medical School .. 63
City of London College, Moorfields .. 63
Cooke's School of Anatomy 64
London Hospital Medical College 63
Royal London Ophthalmic Hospital .. 63
St. Bartholomew's Hos. & College 63
St. Mary's Hospital Medical School .. 61
West London Post-Graduate College.. 63

MEDICAL SCHOOLS (PROVINCIAL):—
Anderson's College Medical School, Glasgow 63
Liverpool Skin Hospital 64
St. Mungo's College, Glasgow 64
University College, Bristol 63
University of Leeds 64
University of Liverpool 64
University of Sheffield..... 63

NURSING INSTITUTES:—
Clapton Nursing Home 67
General Nursing Association 66
Hos. for Sick Children, Gt. Ormond-st. 66
Leeds Trained Nurses' Institution..... 67
London Nurses' Association 66
Male and Female Nurses' Assoc. 67
Male Nurses' Association 66
Male Nurses' Co-operation 67
Middlesex Hos. Trained Nurses' Inst. 67
Mildmay Nursing Institute 66
Nurses' Co-operation, Portland-place 66
Queen Charlotte's Lying-in Hos..... 64
St. Bartholomew's Hos. Nurses' Inst. 66
St. John's House 66
Temperance Male and Female Nurses' Co-operation 63
Temperance Male Nurses' Co-operation 67
Temperance Nursing Society 67

OFFICIAL NOTICES:—
Central London Ophthalmic Hospital 76
King's College Hospital 64
King's College 64, 65
Medical Exhibition 10
Middlesex Hospital Medical School .. 55
New York Post-Graduate Medical School and Hospital 62
Pathological Laboratories, Langham-place 65
Royal College of Physicians of London 63
Royal Institute of Public Health 64
Royal Naval Medical Examination .. 67
Samaritan Free Hospital for Women, Marylebone-road..... 65
St. John's Hos. for Skin Diseases 64
University College, London 65

PARTNERSHIPS & PRACTICES:—
Fosters, Burroughs & Calvert, Norwich 84
London Medical Agency, stand..... 84
Manchester Medical Association 84
Medicus Bradford 84
No. 441, L.O., Strand..... 84
No. 532, L.O., Strand..... 83
No. 547, L.O., Strand..... 84
No. 548, L.O., Strand..... 84
No. 554, L.O., Strand..... 84
No. 554, L.O. Strand..... 84
No. 563, L.O., Strand..... 84
No. 571, L.O., Strand..... 83
No. 573, L.O. Strand..... 84
Peacock & Hadley, Craven-street 83
Spencer, Craven-street 84
39, Great James-street, W.C. 84

RAILWAY & STEAMSHIP CO.'S:—
New Zealand Shipping Co..... 78
Royal Mail Steam Packet Co.—Tours 78

SCHOOLS, PREPARATORY, &c.:—
Manchester Physical Training College 65

TUTORS & LECTURERS:—
Fellowship 62
Gaunt 66, 67
Keets 67
Knight 66
No. 5.5, L.O. .. 66
No. 526, L.O. .. 66
No. 682, L.O .. 63
Univ. Exam. Postal Inst... 66
Van Praagen.... 66
Weymouth 65

(For Index to Trade and Miscellaneous Advertisements see page 4.)

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OF

MEDICINE

By

FREDERICK T. ROBERTS,

M.D., B.Sc., F.R.C.P.,

FELLOW OF UNIVERSITY COLLEGE; EMERITUS PROFESSOR OF MEDICINE AND CLINICAL MEDICINE AT UNIVERSITY COLLEGE; CONSULTING PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, AND TO BROMPTON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST; EX-PRESIDENT OF THE MEDICAL SOCIETY OF LONDON; EX-CENSOR, LUMLEIAN LECTURER, AND HARVEIAN ORATOR AT THE ROYAL COLLEGE OF PHYSICIANS OF LONDON; FORMERLY EXAMINER IN MEDICINE FOR THE CONJOINT BOARD, UNIVERSITY OF LONDON, VICTORIA UNIVERSITY, AND OXFORD UNIVERSITY, ETC.

Extract from Preface to the Tenth Edition.

A long interval has elapsed since the publication of the ninth edition of this work. During the intervening period a vast amount of valuable work has been done in various fields of pathology, and of scientific and practical medicine, and much real progress has been made in many directions. Consequently the preparation of a new edition has been no easy task, especially as I have ventured on the present occasion to undertake and complete it entirely by my own efforts, and without any extraneous help. While endeavouring to bring the work as nearly as possible up to date, events have moved so rapidly during its preparation, that probably the results of some of the more recent researches and investigations may have been unavoidably omitted; but in certain instances I have supplemented in later articles what was not known when the earlier ones were written.

Some important changes in plan and arrangement have been made in this edition. I desire it to be understood that it embodies my personal experience and opinions in relation to a large number of subjects which I have had special opportunities of studying; as well as a considerable summary of many years' professional and clinical teaching. Of course in other cases I thankfully acknowledge my indebtedness to those whose writings, founded on special knowledge, have afforded me the necessary information. My aim has been to make the work as complete and practically useful as its unavoidable limitations permit. Many subjects have been dealt with much more fully than in previous editions; and several are now discussed for the first time.

London: H. K. LEWIS, 136, Gower Street. W.C.

INDEX.

MEDICAL AND OTHER BOOKS AND PUBLICATIONS.

COVER.

PAGE

ABLARD & SON:—
Lingard .... Burnati 1
Shaw ..... Essays on Insanity 1

BAILLIERE, TINDALL & COX:—
Bernardi & Benham .. Death and Sudden Death 1
Findlay ..... Diseases of Women 1
Minder ..... Clinical Surgery 1
Lake ..... Diseases of the Ear 1
Moore ..... Manual of Medicine 1
Shaw-Mackenzie. Etiology and Treatment of Cancer 1

BALE, SONS & DANIELSSON:—
Worth ..... Squint 1

CHURCHILL, J. & A.:—
Candy ..... Chemical Analysis 1
Hale White .. Materia Medica 1
Marshall .... Materia Medica 1
Starling .... Physiology 1

CONSTABLE & CO.:—
Battle & Corner .... Diseases of the Appendix Vermiformis 1
Lanmoniér.. New Methods of Treatment 1
Wright..... Anti Typhoid Inoculation..... 1

GLAISHER:—
Owen ..... X-Rays 1
Savill ..... Neurasthenia 1

LEWIS:— PAGE
Stockling .... On Periodical Headache or Migraine 1
" .... On Epilepsy 1
" .... On Movable Kidney 1
" .... Treatment of Diseases of the Nervous System .. 1
" .... Diseases of the Brain and Spinal Cord 1

PENTLAND, Y. J.:—
Berry..... Manual of Practical Ophthalmology 1
Cunningham. Text-book of Anatomy .. 1
" Manual of Anatomy.... 1
Gibson & Russell.... Physical Diagnosis 1
Muir & Ritchie.... Manual of Bacteriology 1
Thomson & Miles .... Manual of Surgery 1
Waring .... Operative Surgery 1

SAUNDERS & CO.:—
Saunders' Important Books 1

MEDICAL LIBRARIES, &c.:—
Davidson—Sight-Testing for the G.P. 1

APPLETON, S.:—
Bryant ..... Operative Surgery 7
Butler ..... Medical Diagnosis..... 7
Holt ..... Diseases of Infancy 7
Osler ..... Practice of Medicine .. 7
Williams.... Obstetrics 7

BAILLIERE, TINDALL & COX:—
Barwell .... Lateral Curvature of the Spine, &c. 6

BAILLIERE—(Continued). PAGE
Bigg ..... Constipation 9
De Santi .... Malignant Diseases of the Larynx..... 9
Edwards .... Carcinoma of the Rectum 9
Harman .... The Conjunctiva in Health, &c. 2
Lamb ..... Examination of the Throat, Nose, and Ear 9
Mayo-Collier Mouth Breathing 9
" Chronic Progressive Deafness 9
Turner ..... Appendicitis 9
Vincent .... Nutrition of the Infant 9

CASSELL & CO.:—
Herman .... Diseases of Women 8
Morris, H.. Surgery of the Kidney and Ureter 9
" .. Injuries and Diseases of Genital, &c., Organs .. 9

CHURCHILL, J. & A.:—
Sqilis ..... Malignant Disease..... 6
Cripps ..... Diseases of the Rectum 6
" ..... Cancer of the Rectum .. 6
West ..... How to Examine the Chest..... 9

CORNISH BROS. (BIRMINGHAM):—
Sawyer, Sir J. Practical Medicine 9
" Insomnia, &c. 9

GLAISHER:—
West..... Granular Kidney, &c. .. 6

GRIFFIN & CO.:—
Bury ..... Clinical Medicine 6
Landois .... Human Physiology 6
Taylor ..... Applied Anatomy 6

GRIFFIN—(Continued). PAGE
Von Jaksch.. Clinical Diagnosis 6
West ..... Organs of Respiration. 6, 9

KEGAN PAUL & CO.:—
Taylor ..... Diseases of the Eye 6

LEWIS:—
Roberts, F.T. Theory and Practice of Medicine 3

MEDICAL PUBLISHING CO.:—
Lane ..... Chronic Constipation .. 6

PUBLICITY, LIMITED:—
Richards .. The Consumptive Poor of England 9

RENSHAW:—
Green ..... Pathology, &c 5
Tanner ..... Index of Diseases 4
Wood ..... Application of Trusses 9

SAUNDERS & CO.:—
Anders .... Practice 5
Church & Peterson .. Nervous, &c., Diseases 5
Nothnagel's Practice 6
Warner and .. Physiology 5
Saunders' Year-Book 5

SMITH, ELDER & CO.:—
Keetley .... Orthopædic Surgery.... 6
" .... Gastric Ulcers 6
" .... Complicated Fractures 6

THE LANCET PUBLICATIONS .. 10

MEDICAL LIBRARIES, &c.:—
Behnke—Stammering 9
Institute of Hygiene—
The Hygienic Handbook..... 9

OFFICIAL AND GENERAL ANNOUNCEMENTS.

APPOINTMENTS VACANT:—
Aberdeen Royal Infirmary 78
Addenbrooke's Hospital, Cambridge.. 77
Bradford Corporation Waterworks Hospital 78, 78
Bradford Royal Infirmary..... 78
Brighton Throat and Ear Hospital .. 78
Central Midwives Board 77
Cheadle County Asylum, Macclesfield 78
City of London Hospital for Diseases of the Chest 78
Cornwall County Asylum, Bodmin ... 77
County Asylum, Rainhill 78
County Borough of Huddersfield 78
Dreadnought Hospital, Greenwich .. 78
Farrington General Dispensary 79
Guest Hospital, Dudley 78
Hammersmith General Hospital 79
Hospital for Consumption and Diseases of the Chest, Brompton 76
Hospital for Women, Soho-square.... 79
Huddersfield Infirmary 77
Kent County Asylum, Maidstone ... 77
Leith Hospital 77
London Hospital 76
London Lock Hospital 77
London Throat Hospital, Great Portland-street 77
Loughborough and District General Hospital, &c. 77
Manchester Royal Infirmary 79
Mid-Essex County Asylum, Hanwell 78
Newcastle-upon-Tyne Union Workhouse 79
North Cambridgeshire Hospital, Wisbech 79
North Staffordshire Infirmary and Eye Hospital 78
Royal Dental Hospital, Leicester-square 79
Royal Ear Hospital, Soho 77
Royal Free Hospital, Gray's Inn-road 77
Royal London Ophthalmic Hospital.. 77
Royal Sea Bathing Hospital, Margate 77
Samaritan Free Hospital for Women, Marylebone-road 77
Somerset Hospital, Cape Town 77
Stepping Hill Hospital, Stockport 78
St. Thomas's Hospital 77
Throat Hospital, Golden-square 78
Wolverhampton Corporation Dispensary 79
West Riding Asylum, Wakefield 78
Wolverhampton and Staffordshire General Hospital 79
York Dispensary 79

ASSISTANCIES, MEDICAL 84

ASYLUMS, HOMES, &c.:—
Ashwood House, Kingswinford 75
Bailey, Midhurst 75
Barham Home 75
Barnwood House Hospital..... 69
Bedford House, Brighton 75
Bethel Hos. for Mental Diseases ... 74
Bishopstone House, Bedford..... 75
Box 70, Reading 75
Buntingford House Retreat, Herts .. 71
Camberwell House, Peckham-road .. 75
Capel Lodge, near Folkestone 75
Chapman, Banham Common 75
Clarence Lodge, Clapham-park 75
Coppice, The, Nottingham..... 69
Coxlewell Sanatorium 75
Crockesbury Sanatorium, Surrey..... 72
Dalrymple Home, Rickmansworth .. 75
Denton Johns' Sanatorium, Parkstone 75
ASYLUMS—(Continued).
Dr. Seadcora 75
Dr. Rashleigh's Sanatorium, Dartmoor 75
East Anglian Sanatorium, Mayland .. 75
Electrical Ozone and Light Treatment 75
Fairford Retreat, Gloucestershire..... 74
Ferguson, Barnet 74
Flower House, Catford 69
Grove House, Church Stretton 69
Grove, The, Catton, Norwich 69
Hailey Open Air Sanatorium, Ipsden 71
Haydock Lodge, Newton-le-Willows 73
Holgate Hall, Norwich 74
High Shot House, Twickenham 69
Hitch, Mrs., Hollington 69
Home of Good Hope, Bournemouth .. 69
Home Sanatorium, Bournemouth 71
Inverurie Lodge Convent, Colinsburgh 70
King Turner, Cheltenham 74
Lady Superintendent, Brighton 74
Lady Superintendent, Streatham 74
Lawson, Nordrach-on-Dee, Banchory 72
Leigh House, Warwick 74
London Fever Hospital 74
London Open-Air Sanatorium, Wokingham 72
Malcolm Grove House, Leicester..... 69
Mont House, Tamworth 69
Moorcote Open-Air Sanatorium, Eversley 73
Nordrach-upon-Mendip Sanatorium.. 71
Northlands Retreat, Wandsworth 73
Northumberland House, Finsbury-park 76
Northwoods House, Winterbourne .. 70
Norwood Sanatorium 70
No. 107, Edinburgh 75
No. 440, L.O., Strand 74
No. 4 6, L.O., Strand 74
No. 502, L.O., Strand 75
No. 562, L.O., Strand 75
Orbill Hills Sanatorium, Kinross-shire 72
Overdale, Whitefield 69
Puritan, Winchelsea 71
Pine-yn-Dinas, Merionethshire 71
Plympton House, South Devon 69
Rosslyn Open-Air Sanatorium, Co. Down 72
Shaftesbury House, Formby 71
Slater, Teignmouth..... 74
Smallcross, &c., Hos., South Minims .. 75
Springfield House Private Asylum, Bradford 69
St. Andrew's Hospital, Northampton 69
St. Luke's Hospital, N.O. 69
St. Ives, Orme-street 69
Stone House, Canterbury 74
Stretton House, Church Stretton 69
Thunderclifte Grange, nr. Rotherham 74
Tower House, Leicester 69
Vale of Clwyd Sanatorium 73
Warneford Asylum, Oxford 69
West Malling-place, Kent 71
Whitmead Hill Sanatorium, Farnham 71
Woodford House, Exeter 69
Wye House, Buxton 69
Wyke House, Isleworth 69
Yarrow Convalescent Home, Broadstairs 70

COMPANIONS:—
Cassalet, Malvern 85
Lady Harley-court 85
L. L., Leasenhall-street 85
No. 2 2, L.O., Strand..... 85

FINANCIAL, &c.:—
Birkbeck Bank..... 70
Equitable Reversionary Interest Soc. 70

HEALTH RESORTS, BATHS, &c.:—
Aberystwith, the Harrits of Wales .. 72
Bad Ems 74
Dunblane Hydro Establishment 74
Smedley's, Matlock 74
South Devon Health and Holiday Resort, Bishop's Teignton 73

HOMES, &c., WANTED:—
X. Y. Z., Maidstone 78

HOTELS:—
Barton Court Hotel, New Milton 69
Bracondale Hotel 69
Montreux Hotel and Chateau, Belmont 69

HOUSE & ESTATE AGENTS:—
Bacon, Liverpool-street 69
Gadford & Co., Wigmore-street 82
Gregory, Temple 82
Hill, Southampton 69
No. 348, L.O., Strand 69
W. G., Old Broad-street 69
Consulting-room —
Harley, Knightsbridge 69
No. 7, Portland-place, W. 69

LIFE & FIRE ASSURANCES:—
General Life Assurance Co. 70
National Provident Institution 70
Prudential 70

MEDICAL ACCOUNTANTS, &c.:—
Turner 84

MEDICAL AGENTS:—
Dr. Field Hall 73
Lee & Martin 83
London Medical Agency..... 83
Manchester Medical Agency 82
Manchester Medical, &c., Association 83
Medical Agency 82
Needes, Norbeare 83
Needes, J. C. 70
Orridge 83
Peacock & Hazley 83
Reynolds & Branson 83
Scholastic, Clerical, &c., Assoc. 83
Turner 83
Wilson & Son 83

MEDICAL SCHOOLS (LONDON):—
Charing Cross Hos. Medical School .. 63
City of London College, Moorfields .. 63
Cooke's School of Anatomy 63
London Hospital Medical College 63
Royal London Ophthalmic Hospital .. 63
St. Bartholomew's Hos. & College .. 63
St. Mary's Hospital Medical School .. 63
West London Post-Graduate College.. 63

MEDICAL SCHOOLS (PROVINCIAL):—
Anderson's College Medical School, Glasgow 63
Liverpool Skin Hospital 64
St. Munco's College, Glasgow 64
University College, Bristol 63
University of Leeds 64
University of Liverpool 64
University of Sheffield..... 63

NURSING INSTITUTES:—
Clapton Nursing Home 67
General Nursing Association 68
Hos. for Sick Children, Gt. Ormond-st. 68
Leeds Trained Nurses' Institution..... 67
London Nurses' Association 68
Male and Female Nurses' Assoc. 67
Male Nurses' Association 68
Male Nurses' Co-operation..... 67
Middlesex Hos. Trained Nurses' Inst. 67
Mildmay Nursing Institute 66
Nurses' Co-operation, Portland-place 64
Queen Charlotte's Lying-in Hos..... 64
St. Bartholomew's Hos. Nurses' Inst. 68
St. John's House..... 64
Temperance Male and Female Nurses' Co-operation 63
Temperance Male Nurses' Co-operation 67
Temperance Nursing Society 67

OFFICIAL NOTICES:—
Central London Ophthalmic Hospital 70
Kings College Hospital 64
King's College, Chelsea 64, 65
Medical Examination 14
Middlesex Hospital Medical School .. 55
New York Post-Graduate Medical School and Hospital 62
Pathological Laboratories, Langham-place 65
Royal College of Physicians of London 63
Royal Institute of Public Health 65
Royal Naval Medical Examination .. 67
Samaritan Free Hospital for Women, marylebone-road.. 65
St. John's Hos. for Skin Diseases 64
University College, London 65

PARTNERSHIPS & PRACTICES:—
Fosbery, Burroughs & Calvert, Norwich 84
London Medical Agency, strand..... 84
Manchester Medical Association 84
Medicus, Bradford 84
No. 441, L.O., Strand..... 84
No. 526, L.O., Strand..... 84
No. 547, L.O., Strand..... 84
No. 548, L.O., Strand..... 84
No. 554, L.O., Strand..... 84
No. 558, L.O., Strand..... 84
No. 562, L.O., Strand..... 84
No. 563, L.O., Strand..... 84
No. 571, L.O., Strand..... 84
No. 573, L.O., Strand..... 84
Peacock & Hazley, Craven-street 83
Spooner, Craven-street 84
St. Cross, James-street, N.W..... 14

RAILWAY & STEAMSHIP CO.'S:—
New Zealand Shipping Co..... 78
Royal Mail Steam Packet Co.—Tours 79

SCHOOLS, PREPARATORY, &c.:—
Manchester Physical Training College 65

TUTORS & LECTURERS:—
Fellowship 62
Gooch 66, 67
Keats 67
Knight 66
No. 5.5, L.O. .. 66
No. 626, L.O. .. 66
No. 662, L.O ... 63
Univ. Exam. 66
Postal Inst... 66
Van Praagh.... 66
Weymouth 65

(For Index to Trade and Miscellaneous Advertisements see page 4.)

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THE

THEORY AND PRACTICE

OF

MEDICINE

By

FREDERICK T. ROBERTS,

M.D., B.Sc., F.R.C.P.,

FELLOW OF UNIVERSITY COLLEGE; EMERITUS PROFESSOR OF MEDICINE AND CLINICAL MEDICINE AT UNIVERSITY COLLEGE; CONSULTING PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, AND TO BROMPTON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST; EX-PRESIDENT OF THE MEDICAL SOCIETY OF LONDON; EX-CENSOR, LUMLEIAN LECTURER, AND HARVEIAN ORATOR AT THE ROYAL COLLEGE OF PHYSICIANS OF LONDON; FORMERLY EXAMINER IN MEDICINE FOR THE CONJOINT BOARD, UNIVERSITY OF LONDON, VICTORIA UNIVERSITY, AND OXFORD UNIVERSITY, ETC.

Extract from Preface to the Tenth Edition.

A long interval has elapsed since the publication of the ninth edition of this work. During the intervening period a vast amount of valuable work has been done in various fields of pathology, and of scientific and practical medicine, and much real progress has been made in many directions. Consequently the preparation of a new edition has been no easy task, especially as I have ventured on the present occasion to undertake and complete it entirely by my own efforts, and without any extraneous help. While endeavouring to bring the work as nearly as possible up to date, events have moved so rapidly during its preparation, that probably the results of some of the more recent researches and investigations may have been unavoidably omitted; but in certain instances I have supplemented in later articles what was not known when the earlier ones were written.

Some important changes in plan and arrangement have been made in this edition. I desire it to be understood that it embodies my personal experience and opinions in relation to a large number of subjects which I have had special opportunities of studying; as well as a considerable summary of many years' professional and clinical teaching. Of course in other cases I thankfully acknowledge my indebtedness to those whose writings, founded on special knowledge, have afforded me the necessary information. My aim has been to make the work as complete and practically useful as its unavoidable limitations permit. Many subjects have been dealt with much more fully than in previous editions; and several are now discussed for the first time.

London: H. K. LEWIS, 136, Gower Street, W.C.

INDEX—(CONTINUED).

TRADE AND MISCELLANEOUS ADVERTISEMENTS.

COVER.

PAGE

CHEMISTS & DRUGGISTS:—
Bullock & Co.—
Pepsina Pond ... 11
Acid Glycerine of Pepsine ... 11
Hewlett & Son—
Mist. Pepsinæ Co. c. Bismutho ... iv
Vinolia Co., Ltd.—
Vinolia Soap ... 11

FOODS:—
Ivy's Malted Cocoa ... iii
Valentine's Meat Juice Co.—
Meat Juice ... iii

WINES, BEER, SPIRITS, &c.:—
Wright & Son, Ltd.—
Old Gran's Special Tuddy ... ii

MISCELLANEOUS:—
Merryweather—Firemains, &c. ... iii

AMBULANCES:—
S. John Ambulance—
Invalid Carriages ... 89

BOTTLE MERCHANTS:—
Isaacs ... 13
Islington Glass Bottle Company ... 85
Kilner Bros., Ltd. ... 11

CARRIAGES, MOTORS, &c.:—
Armstrong—
Coachmen's and Grooms' Liveries 89
Mayhorn & Son—
Spen Buggy ... 89
Pearson—Electric Landaulette ... 89
Star Motor Agency—
Motor Cars ... 89
Zenith Motor Engineering Co.—
Zenith Motor Car ... 89
" Bicar ... 89
W. George-street, Portman-square—
Secondhand Carriages ... 89

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Antirol ... 35
Bync-Hypophosphites ... 39
Bynin ... 36
Andrus & Andrus—
Hemaboloids ... 43
Antikamnia Chemical Co.—
Antikamnia Tablets ... 44
Armour & Co.—
Supraremalin ... 43
" Solution ... 43
" Triturates ... 43
Battle & Co.—
Bromidia ... 23
Battley's Liquors ... 54
Bayer Co.—
Heimitol ... 38
Somatose ... 38
Jothion ... 38
Ubarin ... 38
Brin Oxygen Co.—
Brin's Oxygen ... 57

CHEMISTS—(Continued).

PAGE

Buchner, Schacht & Co.—
Sandow's Carbonated Acid Bath .. 85
Bf. Brom-Salt ... 85
Sandow's Artificial Mineral Water Salts ... 85
Burgoyne, Burbidges & Co.—
Salit ... 18
Collargol ... 18
Protargol ... 18
Xeroform ... 18
Burroughs Wellcome & Co.—
Tablet and Soloid Trade Marks.. 30
" Nux Vomica Compound.. 30
Christy & Co.—
Glyco-Heroin ... 34
Furonculine ... 46
Glyco-Thymoline ... 39
Mel-Marvin ... 36
Denver Chemical Co.—
Antiphlogistine ... 42
Dinneford's Fluid Magnesia ... 80
Duncan, Flockhart & Co.—
Chloroform ... 33
Chloryl Anæsthetic ... 33
Fairchild Bros. & Foster—
Pepsin Digestive Ferments ... 38
Fellows—Syr. Hypophos. Co., Fellows 45
Gilbs, Schacht & Co.—
Schacht's Fluid Pepsine ... 51
Hoyer & Co.—Melo-Seltzo ... 46
Hudson—Rumenthol Jujubes ... 50
Kirby & Co.—
Purgen ... 46
Knoll & Co.—Styracol ... 56
Kreochyle Co.—
Barff Boro-Glyceride ... 56
Maltine Manufacturing Co.—
Maltine ... 37
" with Cod Liver Oil ... 37
Martindale—
Drugs, Chemicals, &c. ... 10
Mather, Lodine & Fleming—
Iodoform-Hoechst ... 20
Argonin ... 21
Supradenin ... 20
Pyramidon ... 20
Aleudrin ... 20
Trigemin ... 20
Alumnol ... 16
Benzonol ... 16
Newbery & Sons—
Pulvis Jacobi Ver. ... 46
Bromo Soda ... 47
Tono Sumbul ... 47
Parke, Davis & Co.—
Antidote and Emergency Case ... 30
Pond's Extract ... 11
Raimes & Co.—
Slinger's Nutrient Suppositories.. 48
Salamon & Co.—Furrot Chloroform .. 46
Sanatogen Co.—Sanatogen ... 43
Savory & Moore—
Pancreatic Emulsion ... 31
Scott & Bowne—
Scott's Emulsion ... 49
Tamar Indien Grillon ... 16
Zimmermann, A. & M.—
Beta-Eucaine-Lactate ... 49
Nafalan ... 48

FILTERS:—
Defries & Son—
Lipscombe & Co.'s Apology ... 16

FOODS:—
Allen & Hanburys—
Allenburys Milk & Cereal Diet.... 31

FOODS—(Continued).

PAGE

Aylesbury Dairy Co.—
Humanised Milk ... 30
Benger's Food, Ltd.—
Benger's Food ... 31
Blatchley's Diabetic Preparations 54
Bonthron & Co.—
Gluten Bread and Biscuits ... 55
Brand & Co.—Essence of Beef ... 54
Callard & Co.—
New Diabetic Foods ... 53
Fairchild Bros. & Foster—
Pancepsion ... 23
Foods, Ltd.—
Mesolerva Food ... 54
International Plasmon, Ltd.—
Plasmon ... 15
McCowen—Atlantic Oysters ... 55
Nestlé—Milo Food ... 55
Tanlhardt's Food Co., Ltd.—
Hygiama ... 27
Tibbles' Vi-Cocoa, Ltd.—Vi-Cocoa.... 53
Van Abbott & Son—Gluten Flour.... 54
Vitol Ltd.—Vitol ... 47
Wolfred & Sons—
Humanised Milk ... 51
Asses' Milk ... 51

FURNITURE, &c.:—
Carter—Invalid Furniture ... 18
Ward—Invalid Furniture ... 13

HOSIERS, &c.:—
Cash—
Invalid's Nightdress ... 11
Wahabic Maternity Binder ... 11

MED. & SURG. APPLIANCES:—
Bailey & Son—
Aseptic Hospital Furniture ... 40
" Instrument Cabinets ... 40
Barker Massage Machine Co —
Barker Massage Machine ... 13
Brady & Martin—
Aural Specialties ... 13
Cocking—
Poro-Plastic Jackets and Splints.. 11
Cox's New Portable Cots ... 13
Neal & Son—
Hospital Bedsteads and Aseptic Furniture ... 17
Hoopes & Co.—
Elastic Water or Air Beds ... 12
Maw, Son & Sons—
Artificial Limbs, &c. ... 61
May, Roberts & Co.—
Absorbent Tissue ... 56
Cotton Wools ... 56
Gamgee Tissue ... 56
Lints ... 56
Waterproof Sheetings ... 56
Millikin & Lawler—Osteology, &c. .. 17
Pond—Arch Support Socks ... 9
Pope & Plante—
Elastic Stockings ... 56
Abdominal Supporting Belts ... 53
Robinson & Sons—Gamgee Tissue 14
Wood—
Eureka Crêpe Velpeau Bandages.. 59

MINERAL WATERS:—
Apollinaris Co.—Apenta ... 41
Cheltenham Pavilion ... 53
Davis—Tarasp Water ... 56
Hogg & Son—Piperazine Water ... 57

MINERAL WATERS—(Continued).

PAGE

Ingram & Royle, Ltd.—
Carabad Salt ... 52
Robinson's Concentrated Waters 55

PHOTOGRAPHY:—
Martin—Developing Reliable Film .. 35

PRINTERS & ENGRAVERS:—
Cooke & Co.—
Brass Name Plates and Lamps 49
Morley—Brass Door Plates ... 11

SANITARY APPLIANCES, &c.:—
Aymard Patent Milk Sterilizer Co.—
Milk Sterilizer ... 11
Condy's Fluid Works—
Condy's Crystals ... 61
Scottish Bros. & Barclay—
Accouchement Sets ... 59
" Shroud, &c. ... 59
Wright, Layman & Umney—
Liquor Carbonis Detergens ... 35

STATIONERY, &c.:—
Curzon, Lloyd & Macgregor—
Anglomaer Fountain Pen ... 88
John Heath & Co.—Pens ... 88

TAILORS, BOOTMAKERS, &c.:—
Anderson's Bristol Rubber Co—
Nerodina Waterproofs ... 12
Emerson Boot Store—
Emerson Boot ... 90

VACCINE LYMPH:—
Allen & Hanburys—
Calf Lymph ... 14
Assoc. for Pure Vaccine Lymph ... 14
Hime—Glycerinated Calf Vaccine 14
Jenner—Institute for Calf Lymph 14
Lehman—
Glycerinated Pure Calf Lymph .. 14
Renner's Calf Lymph Establishment. 15
Wylye, Ltd.—Calf Lymph ... 14

WATCHMAKERS, &c.:—
Benson—Doctor's English Watch 61

WINES, BEER, SPIRITS, &c.:—
Buck & Co.—
"G. S." Diabetic Whisky ... 57
Bishop & Sons—
Brut-Royal ... 57
Brown & Pank—
Fine Vintage Brandy ... 53
Buchanan—
Black and White Scotch Whisky.. 54
Gautier's Liqueur Brandy ... 57
Marnell's Three Star Brandy ... 60
Whiteway's Devonshire Cyders 54

MISCELLANEOUS:—
Bond—Post as Secretary ... 85
Bruce—
Safety Parabolic Reflector Lamp 13
H. S., Aldersgate-street—
Invalid Bath Chair ... 89
Matchless Metal Polish Co., Ltd.—
Matchless Metal Polish ... 15
Osborne, Garrett & Co.—
Kropp Razor ... 12

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A Clinical Lecture
ON
THREE CASES OF TABES DORSALIS.

Delivered at the Medical Graduates' College and Polyclinic on April 11th, 1905,

BY C. O. HAWTHORNE, M.D. GLASG., M.R.C.P. LOND.,

EXAMINER IN MEDICINE AND CLINICAL MEDICINE IN THE UNIVERSITY OF ABERDEEN; PHYSICIAN TO THE CENTRAL LONDON OPHTHALMIC HOSPITAL; ASSISTANT PHYSICIAN TO THE NORTH-WEST LONDON AND ROYAL WATERLOO HOSPITALS.

GENTLEMEN,—The three cases to which I wish to direct your attention this afternoon, though they differ widely in the symptoms they present, are all, I believe, examples of one and the same disease—namely, tabes dorsalis. The justification of the diagnosis in each individual case must, of course, be provided in detail, but, accepting it in the meantime, I present the three cases in series because they illustrate some of the many different forms in which tabes dorsalis may commence its clinical career. In one of these patients the complaint is solely of pain and there is no other admitted disability; the second suffers from gradual failure of sight and only allows other symptoms under some pressure; and the third is the victim of a second attack of double vision after having obtained relief from a similar condition some 12 months ago. Not one of these patients suffers from difficulty in walking and in none of them is there appreciable ataxia either in the lower limbs or elsewhere. Yet I believe you will have no difficulty in agreeing with me that they all belong to the group of cases commonly termed "locomotor ataxia." Hence they support the use of such a non-committal name as "tabes dorsalis" in preference to a term which describes a particular symptom of the disease and a symptom, moreover, which, as in the present instances, is by no means always present.

The first case is that of a man aged 35 years. He tells us that for about four years he has been troubled with attacks of pain that have been variously interpreted as rheumatism or gout or neuralgia. At times he is entirely free from pain, but on other days he suffers so much that he is quite unable to attend to business. Often he will go to bed in his usual health but will shortly wake up "in great agony," so that he may be unable to get rest for several hours. The pains are principally in the legs and feet but more recently they have also been very troublesome at the back of the head and behind the ears. Sometimes, he tells us, the pains appear to be on the surface, at other times deep in the muscles. He does not admit that "lightning pains" would be a good term to apply to them but says that the worst form of pain is like "a deep toothache." But for these pains—and this is one of the important aspects of the case—the patient considers himself in good health. He has, he thinks, been "pulled down a bit" by the frequency and severity of the pain, but could he only get rid of this one annoyance he would enjoy thoroughly good health. This conviction is supported by the man's general appearance, which is by no means that of an invalid. Further, the usual routine examination detects no sign of disease in the thoracic or abdominal viscera and, as you see, his gait is entirely undisturbed and there is no trace or suggestion of ataxia. Yet if one follows out the reasonable plan of examining the nervous system, just as is the rule in reference to the other organs of the body, there is a prompt discovery of facts which leaves no doubt of the existence of organic nervous disease. Thus it is at once obvious that there is a degree of inequality of the pupils and that neither is quite circular—facts which are, perhaps, not outside the limits of the normal. But there is also decided loss of the light response, which is, of course, a quite definitely abnormal fact. The pupils are of medium size and in this respect therefore do not correspond to the contracted pupil often seen in tabes dorsalis. But the defect in the light response, with the persistence of free contraction during convergence, puts them decisively in the Argyll-Robertson group and suggests at once central degenerative nervous disease. All other facts in our clinical scrutiny of the nervous system are negative until we come to the examination of the tendon-jerks and there, whatever manœuvre we adopt, we cannot obtain even a trace of the knee-jerk or of the heel-jerk in either limb. Absence of these jerks, Argyll-Robertson pupils, and a history of attacks of severe pains extending over months or years, make certain the position that the case belongs to the tabes dorsalis group. And, in accepting this conclusion, we note with interest the conspicuous complaint of subjective sensory phenomena in association with the entire absence of motor disturbance so far as the patient's consciousness is concerned. Loss of tendon-jerks and defective light-response in the pupils, though, in a sense, motor defects, cause no appreciable disability and are only recognised by a trained observer. Hence, though highly significant to the physician, they receive no attention from the patient.

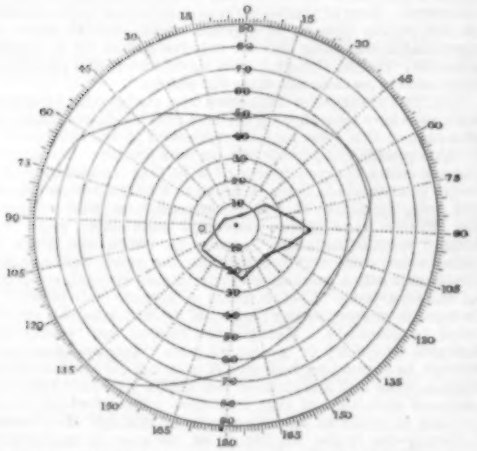
The first observation suggested by a conjunction of events such as is here related is on the ease with which the diagnosis of a case of this order may be overlooked in the absence of a routine practice of testing the nervous system. The second remark raises the possibility of a further reduction of the motor phenomena in tabes dorsalis, so that the sole, or almost the sole, evidence of the disease may be that of pain. Sir William Gowers has described such cases under the term "tabetic neuralgia"—cases in which the pains of tabes exist, and continue perhaps for years, without any ataxia and with a normal, or approximately normal, condition of the knee-jerks. The necessity of keeping this possibility in mind is evident, as the neglect of it may involve a serious error in diagnosis. Our present patient has hardly the extreme simplicity of a case of pure "tabetic neuralgia," though he comes very near it. Were it not for the loss of the tendon-jerks and the state of the pupils he would fulfil the strictest definition of that condition. The practical lesson is that in cases of recurring pain of bilateral distribution affecting the limbs, the trunk, or, as seen in the present patient, the head, the possibility of tabes dorsalis should be kept in view and a careful examination should be made for confirmatory facts—pupillary defects, depreciated tendon-jerks, commencing optic atrophy, delayed appreciation of common sensation, lowered pain sense, bladder disturbances, a history of syphilis, &c. In brief, then, this first patient is an example of tabes dorsalis existing for at least four years in the shape of attacks of severe pain unaccompanied by ataxia but associated on examination with defective response of the pupil to light and loss of the tendon-jerks.

The second patient is a man, aged 54 years, and he has been under frequent observation during the last three years. His story is that shortly before first coming to the hospital he had a cold in the left eye and noticed that the sight of that eye seemed "dull." Then, to his great surprise, he found on covering the right eye that his left eye was almost blind. Such a history is, of course, not at all uncommon in persons who have had a defective eye for years or even from birth, the blindness being only discovered when the patient accidentally, as it were, covers over the sound eye. But our patient was certain that this was not the explanation in his case as three years before the discovery of the defect he had attended an ophthalmic hospital to get glasses for near work and remembers that, with each eye tested separately, he had quite good vision. Examination showed that the visual acuity of the left eye was reduced to the ability to count fingers at four feet, whilst with the right eye he could read $\frac{1}{2}$ and, with the necessary presbyopic correction, J.1 at 12 inches. So far, therefore, the presumption seemed to be that we had to deal with a uniocular defect of comparatively recent origin. And the ophthalmoscopic facts apparently harmonised with this view. The left disc was unduly white and had a shallow, cupped appearance such as is frequently seen in optic atrophy, whilst the right disc could not in any sense be pronounced abnormal. Hence it seemed possible that the case might be one of embolism or thrombosis of the retinal artery, or an example of retro-bulbar neuritis, or due to some other circumstance capable of producing a unilateral optic atrophy. But when the visual fields were taken the case assumed an entirely different aspect. The left field, as was to be expected, was extremely contracted (Fig. 1). But a not less certain defect was found in the field of the right eye, that is, in the eye with a full measure of visual acuity and with an optic disc and fundus appearing normal to the ophthalmoscope. As is seen in the tracing (Fig. 2), there exists in the upper and outer part of the right field a sector-shaped defect with, also, a general contraction of the field

for red. Now it is true that want of intelligence, or nervousness, on the part of a patient may result in the production of an inaccurate perimeter tracing, but in such circumstances the tracing is usually affected—contracted for the most part—at all parts of its circumference. But a localised defect such as is here exhibited is almost certainly incapable of any such explanation. A sector-shaped defect in the

FIG. 1.

LEFT

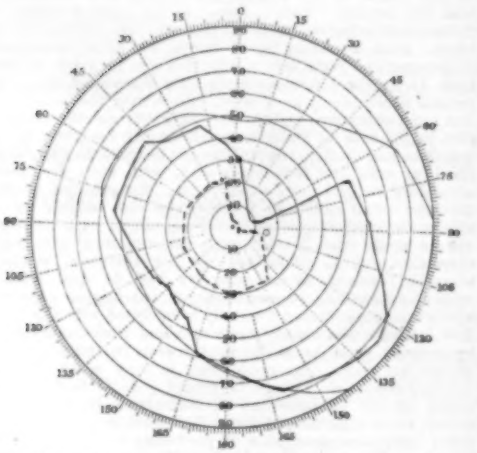


Area within which "something moving" is seen. No appreciation either of white or colour in any part of field.

visual field, in short, can hardly mean other than organic change, and, more especially when associated with undoubted optic atrophy in the other eye, must be taken to mean optic atrophy in an early stage. The perimeter, therefore, in our second patient proclaimed a defect which neither the test for visual acuity nor the ophthalmoscope had discovered, and, by so doing, altered the

FIG. 2.

RIGHT.



Fields for white and red (15 millimetres square). In central vision all colours (1 millimetre square) promptly recognised.

entire complexion of the case. For, instead of a condition of unilateral optic atrophy, with the probability of a local and relatively insignificant explanation, we were forced to admit a bilateral atrophy, and consequent on this the practical certainty of a cause acting either centrally or through the agency of the blood stream and involving the danger and risk of complete blindness. Now a primary bilateral optic atrophy is a case of nervous disease. Even if no other evidence of disease of the nervous system can be discovered at the time, such evidence will sooner or later almost certainly appear. And even occurring without confirmation elsewhere, a primary bilateral optic atrophy justifies a suspicion, to put it mildly, of changes in the nervous system of the tabes dorsalis order. An examination of the patient in the present instance, however, showed that confirmatory evidence was by no means wanting. In the first place there existed, and as you see there still exists, in each eye marked myosis with the characteristic features of the Argyll-Robertson pupil; secondly, the knee-jerks and heel-jerks are completely absent; and, in the third place, in testing the sensation there is discovered a narrow zone of anæsthesia surrounding the trunk just below the level of the nipple. All these later facts, be it observed, were, so far as the patient's subjective experience was concerned, non-existent. To him his disease was merely a defect in the left eye, just as the first patient considered himself simply the victim of rheumatic or neuralgic pains. Yet in each the diagnosis of tabes dorsalis is "writ large" for those who have eyes to see. Hence it is obvious that a limited subjective complaint, and one by no means strongly suggestive of a central nervous lesion, may be the only evidence in the patient's experience of a disease which clinical examination readily recognises as undoubted tabes dorsalis—that, in short, "neuralgia" alone, or optic nerve atrophy alone, may each be "tabetic" in nature and origin. Our second patient, it may further be noted, though he has now become almost blind, is quite free from ataxia. The diagnosis of tabes dorsalis has, however, received further confirmation from the appearance of shooting pains in the lower limbs and some difficulty in emptying the bladder. The case may, in brief, be accurately defined as one of tabes dorsalis with optic nerve atrophy as an early and predominating event.

The third patient is a man, aged 44 years, and he also complains of a single symptom—namely, double vision. In all other respects he considers himself in good health. The cause of his diplopia is obvious at a glance. He has a widespread paralysis in the area of distribution of the left third nerve. There are drooping of the upper lid, defective ability to move the globe inwards, upwards, or downwards, the pupil is dilated and immobile, and the power of accommodation is lost—the latter shown by his inability to read small type except with the aid of a plus 4·0 spherical lens. Now an ocular paralysis may be an entirely local affair and due to such a relatively trivial cause as cold or rheumatism. But it is an event which, like optic nerve atrophy, brings the nervous system in the widest sense under suspicion. An attempt, however, in this patient to find further evidence to justify such a suspicion results in failure. To every one of the clinical tests used to determine the structural and functional integrity of the nervous system there is a completely satisfactory response. In particular, the tendon-jerks, the visual acuity, the sensory function, and the visual fields are all fully up to the normal standards. Hence at first sight it might appear to be a position capable of defence to hold that this case belonged to the group of "simple" ocular palsies. But in no case of ocular paralysis can such a position be a very secure one until it is fortified by the lapse of time. Again, our present patient tells us that eight years ago he had a venereal sore followed by a quite undoubted development of secondary syphilis. And not less significant is the fact that some 12 months ago he was under observation in consequence of a diplopia due to a paresis of the left sixth nerve. Now, whatever be the explanation, clinical experience shows that the pathological process in tabes dorsalis is apt to produce ocular paralyses which are often of comparatively brief duration and which tend to recur.

Having regard to this it is impossible to take a light-hearted view of a case in which a transitory sixth nerve paralysis is followed after an interval by a paralysis of the third nerve. And the necessity for the more anxious prognosis is emphasised by the reflection that the patient is a man of middle age with a history of syphilis quite without qualification or doubt. Syphilis, it is true, may directly produce an ocular paralysis by a specific meningitis or gummatous deposit involving the trunk of one or more of the cranial nerves supplying the muscles of the eye-ball, and such a condition may be capable of a fairly confident cure

by the appropriate remedies. But, equally, we know that syphilis is often responsible for those degenerative processes in the nervous tissues which form the pathological basis for the disease known clinically as tabes dorsalis. Therefore it is impossible to avoid the fear that it is in events of this latter order that the interpretation of our patient's recurring diplopia is to be found, and this even though no other evidence of nervous disease can be discovered. If this is so the case affords an illustration of a third manner in which tabes dorsalis may exhibit its earliest clinical manifestations. And once grant that an ocular paralysis with its resulting diplopia may be an early evidence of tabes dorsalis it is obvious that no other symptom of that disease is more likely to come under the notice of the physician. A patient may suffer a considerable amount of pain without feeling much alarm and without seeking medical advice. He may even, as we have seen to-day, be the victim of well-developed optic atrophy, so long at least, as this is confined mainly to one eye, without being convinced that there is anything very serious at fault. But a diplopia is a highly inconvenient and alarming event and urges the most phlegmatic patient to seek guidance and treatment. Thus, should tabes dorsalis commence in this fashion it is not altogether strange that in such a case definite confirmatory evidence should be lacking. Such a consideration must influence our judgment in the present instance, and in view of this, of the patient's history, and of the repeated ocular palsies, we are, I think, bound to regard the case as one of tabes dorsalis in which an ocular paralysis has appeared as the first event. Assuming then that the diagnosis in each of these three cases is justified, we see in the first tabes dorsalis displayed mainly, and, indeed, from the patient's point of view, solely, in the form of pains in the limbs and head; in the second case an optic nerve atrophy with the resulting defect of sight is in a parallel position; whilst in the third case a recurring diplopia is the one and only sign that the degenerative processes of tabes dorsalis are active in the nervous system.

A word may be said on the treatment of these cases. The first patient—that is, the man with tabetic neuralgia—has for the last three weeks been taking chloride of aluminium, the remedy introduced by Sir William Gowers for tabetic pains. In addition, as soon as he is conscious of the approach of an attack of pain he takes ten grains of acetanilide and lies down for at least half an hour, the latter condition being of decided value in securing the full action of the remedy. Further, every night at bed-time a hot-water douche is applied to the spine for ten minutes and once a week he has a mustard pack along the dorsal and lumbar spine. These latter measures may seem to be without reasonable basis, seeing that the pains are excited in all probability in the peripheral, not the central, nervous apparatus. Even so, it is not impossible that changed conditions of circulation and nutrition in the spinal centres may influence the peripheral nerves. Certainly patients often find these local measures to be of distinct value, and this, after all, is the last word in a question of therapeutics. To whatever element in this scheme of treatment the improvement is due, the patient himself has no doubt that he is decidedly better, the pains being both less frequent and less severe. The patient with ocular paralysis when first seen was brought fully under the influence of mercury and potassium iodide, on the view that the condition might be due to a gumma or to syphilitic meningitis. But as this, after a three weeks' course, produced no improvement it was discontinued and arsenic and nux vomica were prescribed, together with the local application of electricity. Whether as a result of these measures or merely as a coincidence the sixth nerve paralysis soon began to improve and the patient remained well until a few days ago, when, as we have seen, a third nerve paralysis developed. He will now return to the tonic treatment which he probably discontinued far too soon. It is treatment of this order, rather than large doses of mercury and potassium iodide, that is required by the degenerative nerve lesions following specific disease. At the outset, as here, if there is the possibility of a specific deposit or inflammation as the cause of the symptoms it is right to give a short and energetic course of anti-syphilitic treatment. But if this does not soon produce the desired result it is useless, perhaps even worse than useless, to continue it. Much the same may be said with regard to the patient with optic nerve atrophy. This in cases of tabes dorsalis is a degenerative process, the indirect result of the syphilitic or other toxin, and not an outcome of a definitely specific lesion. Anti-syphilitic treatment, in my experience, never does these cases any good and I question whether it does not sometimes do harm. Improvement is in some instances produced by the hypodermic use of strychnine, but to secure this the drug must be given in full doses—that is, in doses which produce physiological reaction, and the capacity of different individuals in this respect varies within wide limits. You can hardly push the remedy to this extent unless you have the patient under continuous observation and hence in out-patient practice this plan of treatment hardly gets a fair chance. But in more than one case I have seen the measure of sight improved by it, though I must admit the improvement was but for a season. Altogether, tabetic optic nerve atrophy is an unhopeful condition, yet if noted early, strychnine, as above described, and combined with full doses of cod liver oil and other tonics will do something to stay its progress.

THE CIRCULATORY AND ANATOMICAL ABNORMALITIES OF AN ACARDIAC FŒTUS OF RARE FORM.

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THE monster here described was the product of a twin gestation. As we had no opportunity of examining the placenta we cannot state whether it was a uni-ovular or a bin-ovular twin, but from our examination of the monster we consider that the twins came under the classification, suggested by Ballantyne, of "allantoido-angiopagous" twins. The mother, a healthy young woman, had previously given birth to a well-developed child. This, her second pregnancy, was complicated by slight hydramnios and ended in the birth of a healthy female child and the monster which we have, through the courtesy of Sir J. Halliday Croom and Dr. W. Frew, had an opportunity of examining.

Description of the abnormal twin.—Below the umbilicus the monster corresponds in general appearance to a normal fœtus. Above the umbilicus there is a strip of normal skin and then the head and thorax are represented by a membranous bag, now somewhat shrivelled, but apparently measuring in its recent condition about four inches by three. The *apex* of this bag was flexed anteriorly and in the recent state was attached half an inch above, and a little to the left of, the implantation of the umbilical cord. Posteriorly, a band of hairy scalp, half an inch wide, separates the membranous bag from the dorsum of the fœtus. This band probably corresponds to the part of the scalp supplied by the occipital arteries. The fœtus is in a position of marked flexion. The following are the measurements. Length: (*a*) Along the convexity, from the apex to the gluteal fold, 7¾ inches; total length, 12 inches. (*b*) Along the concavity, from the apex to the groin, 3¾ inches; total length, 9½ inches. Circumference at the iliac crests, 8¼ inches. Lower limbs: Right, from the iliac crest to the toe, 6½ inches; left, from the iliac crest to the toe, 6¾ inches. Umbilical cord to the pubes, 2½ inches; umbilical cord to the apex, 1¼ inches. Lower limbs: Right foot, two toes are visible; underneath the skin the bones of a third can be felt. Left foot, two toes are evident, the great and second, and rudiments of a third and fourth can be felt beneath the skin. The upper extremities are absent. Weight: 4 pounds 2 ounces. The sexual organs are those of a male; the testicles are undescended, lying in the pelvis on the lateral wall opposite the termination of the common iliac arteries. The penis showed a marked condition of epispadias. A probe passes freely into the urethra. The anus is imperforate and its position is in no way indicated. The vertebræ were found to be numerically deficient. As the individual vertebræ were of irregular formation the first sacral vertebra was taken as a fixed point which could be identified from its relation to the pelvis. There were five sacral and three coccygeal vertebræ. Five lumbar vertebræ were identified, of which the first was entirely cartilaginous.

There were 12 dorsal vertebræ with which 12 pairs of ribs articulated. The upper four were small. The fifth was wedge-shaped with the apex anteriorly and had neither laminæ nor spine. The remaining seven were large, resembling the lumbar vertebræ. Only one vertebra represented the cervical series; it articulated with the occipital bone, which was the only part of the skull present. The basilar and condylar portions of the occipital bone were well formed. The tabular portion was deficient posteriorly but was well formed round the foramen magnum. The depression for the lateral sinus was present. The jugular notch was well marked and transmitted a vessel, evidently the internal jugular vein. There were 12 ribs on each side; each had on its inferior border a groove containing the intercostal vessels and nerve. On both sides there was fusion of ribs, in all cases beyond the angle of the rib. On the right side the second, third, fourth, and fifth fused beyond the angle and passed forward to articulate with the sternum. On the left side the second, third, and fourth ribs fused, also the fifth and sixth at a similar point. The manubrium of the sternum was single; the remainder of the sternum was bifid throughout its entire length. The pelvis was well formed; the pubes fused in the middle line. The abdominal cavity was found to be divided into two lateral halves by a sheet of peritoneum, which inclosed between its two layers the large intestine. The large intestine was disposed vertically down the cavity while the small intestine was coiled up in the upper left-hand corner of the right-hand half of the cavity and was attached to the posterior wall of the cavity by a mesentery. The line of its attachment was oblique, passing from above downwards and inwards. The large and small intestines were not continuous with each other. There was in addition a third piece of intestine, heart-shaped, and less than two-thirds of an inch in length, distinct from either of the other pieces, which was attached by a fine, thread-like mesentery to the posterior abdominal wall cephalad of the attachments of both the other parts of the intestine.

There was no trace of liver or spleen. The kidneys which were well developed fused below and showed marked fœtal lobulation. The right kidney was much larger than the left. The suprarenal capsules were large, as is usual in the fœtus. Lying in the upper part of the cavity was a spherical glandular mass, very pale in colour. Microscopical sections showed it to be the thyroid gland. The abdominal cavity was closed above by a sheet of tissue containing a few imperfectly formed bundles of muscular fibres which seemed, from their position, to represent the diaphragm. The attachments of the muscular fibres to ribs could not be traced. On cutting through this a small cavity was discovered, five-eighths of an inch by one-quarter of an inch. The lining was indefinite and it could not be ascertained whether it was a serous membrane or not. It contained a lobulated mass, very tough, and attached at its upper end to a short, narrow tube. On section the mass proved to be a lung and the tube to be a minute trachea, with cartilaginous rings and a rudimentary larynx at its upper end. The larynx had been entirely overlooked in the external examination of the fœtus for the reason that it was situated at the bottom of a depression immediately cephalad of the attachment of the umbilical cord. The margins of this depression were the site of attachment of the membranous part of the scalp mentioned before. Ventral to the larynx the pit also contained what appeared to be a rudimentary tongue. There was no trace of a heart or of a second lung. The rectum was found to open into the trigone of the bladder. Owing to the absence of a heart the principal interest centred in the arrangements of the circulatory system. These were very peculiar.

Venous system.—The inferior vena cava lay on the left side of the body instead of the right. The two internal iliac veins united in the pelvis to form a common trunk; into this the two external iliacs emptied at the pelvic brim. The vessel then passed headwards and terminated in the umbilical vein. From the head end of the fœtus two internal jugular veins descended to join the subclavian veins of their own sides, thus forming two innominate veins. (The subclavian veins were identified from their relation to the first rib.) The right innominate received in addition the vena azygos major. The innominates united to form a superior vena cava which joined the inferior vena cava in the umbilical vein. These abnormalities admit of easy explanation. Normally the development of the veins takes place as follows. On either side of the embryo there lies a cardinal vein which receives at the inferior extremity the common iliac vein of its own side and on reaching the level of the kidney receives the renal vein of its own side; thence each passes to the head end of the body and, before terminating in the sinus venosus, receives the head tributaries of its own side. An unpaired vein is next developed downwards, having a median course. As development proceeds this median vein forms connexions with the renal veins on both sides. At the same time the left common iliac vein begins to pour its blood, through anastomotic vessels, into the right common iliac. The blood therefore ceases to flow through that part of the cardinal vein distal to the left renal which in consequence atrophies. The upper continuation of the left cardinal vein is now known as the vena azygos minor. On the right side that part of the right cardinal vein distal to the renal vein transmits the blood of both sides as far as the right renal vein along which it passes to the inferior vena cava—i.e., the median vessel. The proximal part of the right cardinal vein becomes the vena azygos major.

In our specimen the lower part of the vena cava has been developed from the lower part of the left cardinal vein instead of from the right as in a normal fœtus. The upper part of the left cardinal vein has entirely disappeared. That part of the right cardinal vein between the right common iliac and the right renal vein has disappeared in the manner normal to the left side, but the inferior vena cava has never formed an anastomosis with the right (in this instance the only) renal vein, so that the latter continues to open into the vena azygos major—lying in its normal position on the right side—*morphologically* this is the vena azygos minor. That the two internal iliacs open into a common trunk and then receive the external iliacs—the right a little before the left—is to be explained on the theory that fusion has begun at a lower level than is usual in this region.

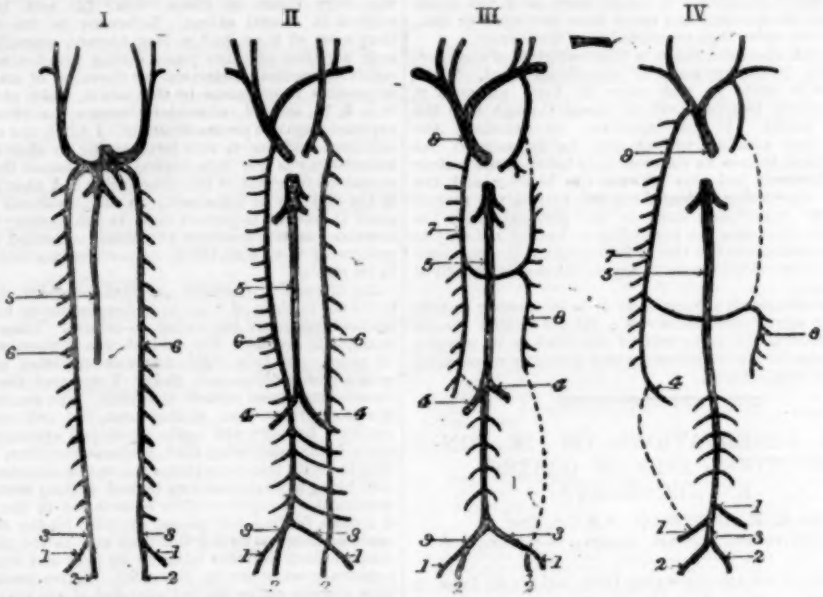
Arterial system.—Two umbilical arteries are found at the umbilicus. Of these the left one passes directly into the pelvis and there divides into an internal and external iliac artery. It has no connexion whatever with the rest of the arterial system. The right vessel followed through the umbilical opening is found to spring from the continuation of the aorta, which gives off the right internal and external iliac arteries. Tracing the aorta upwards, from which these vessels spring, a branch is seen passing behind the cross-bar of the U-shaped kidney. It then turns downwards and, descending on the ventral surface of the cross-bar, passes to supply the large intestine. This is probably the inferior mesenteric artery. There is no trace of any other arterial supply to the intestines. The mesenteric veins were unfortunately not traced, so that the formation of the portal system or its substitute was not worked out. The kidney had a double arterial supply, both branches entering the inner margin of the kidney. Neither passed to the smaller half—that is, both branches went to the right half. Passing still further upwards, the main part of the aorta gave off a very small subclavian artery. The next branch was a small common carotid. This passed upwards and gave off a small branch to supply the glandular mass (situated immediately beneath the trachea) which represented the thyroid. The aorta then passed to the left and terminated in a small left common carotid and small left subclavian. The trunk which divided into these two vessels was probably the innominate artery. It will therefore be noticed that from below upwards the aorta bent to the left instead of to the right. There was no connexion to a heart or to any part of the venous system, except through the capillaries.

If now, the circulation be considered as a whole it will be seen that in this fœtus there is one communication less between the venous and arterial systems than in an ordinary circulatory system. In an ordinary fœtus the blood passes from the umbilical arteries to the placenta, thence to the umbilical vein, then on to the heart, from the auricles to the ventricles, and so completes the circle by again reaching the umbilical arteries. If we now follow the normal course of the blood stream in this anomalous fœtus, supposing the blood to enter by the umbilical vein, since it cannot reach the arterial system by the direct cardiac route owing to the absence of a heart, it has no means of reaching the arterial system except through the capillaries—i.e., by a complete reversal of the normal direction of the stream. For this to occur the motive force must be through the placenta, from the heart of the other twin; if this were the case, the pressure in the venous system would be in excess of that in the arterial system, a condition which would probably manifest itself by the

presence of varicose veins, &c. Of such, however, there is no trace. It, therefore, seems probable that the circulation must have taken some other course. Now, as the arteries at this time naturally contain venous blood and any perversion of the circulation is bound to alter the type of blood contained by the arteries it would follow that some perversion of growth would result. That this is actually what has happened can easily be shown. Arterial blood enters by the umbilical arteries and is therefore conducted at once to the lower limbs. These are consequently well developed. Passing on the stream reaches the inferior mesenteric artery and supplies the large intestine. This we have seen is the best developed part of the intestine. The renal artery is the next in series and a large amount of kidney substance is found. The abnormality is, however, well marked in this structure, the kidney is horseshoe-shaped, and the right lobe is much better formed than the left. The next vessel is the superior mesenteric. This vessel supplies the small intestine and accordingly we find the small intestine represented only by two small disconnected fragments. It is perhaps significant in this connexion that there are three main parts to the superior mesenteric and it is perhaps not too much to suppose that each of the fragments described represents one of the branches.

supplied by the occipital artery, an artery which is developed from the dorsal part of the most cephalad placed arch.

As to the cause of this abnormal circulation in the case of twins, it is obvious, in the first place, that the two twins must have had some connexion between their circulatory systems. One twin was then stronger than the other and its heart seems to have developed in advance of that of the weaker twin. By that means the circulation of both twins was established from the one heart—that of the stronger twin. This must inevitably lead to the reversal of the circulation in the weaker embryo. It may be asked why, if there is an aorta in the weaker twin, is there not even the trace of a heart. One would expect to find it not only present but in some pathological condition, such as widely dilated or with all its valves rendered incompetent and forming a cistern-like connexion between the arterial and venous circulation. It will be remembered that the primitive circulatory condition is a double one, in which the vitelline vessels pass cephalad along the dorsal aspect of the embryo. Then a heart develops and from it two primitive aortæ bud out. These ultimately grow backwards and fuse with the vitelline arteries in the neck region of the fœtus. It is this fusion which has failed to take place and hence the absence of connexion between the arterial and venous circulation which



Figs. I., II., and III. show three stages in the development of the normal venous system. Fig. IV. shows the abnormalities in the fœtus described. 1, External iliac. 2, Internal iliac. 3, Common iliac vein. 4, Renal vein. 5, Inferior vena cava. 6, Cardinal veins. 7, Vena azygos major. 8, Vena azygos minor. 9, Superior vena cava. Vessels marked ---- have completely disappeared.

Corresponding to the phrenic arteries there are scattered muscular fibres representing the diaphragm. The parts supplied by the intercostal arteries are represented, especially in the lower half of the thorax. The lungs, supplied by the bronchial arteries, are present but are rudimentary in the extreme, being present as a single and unpaired structure totally unlike normal lung to the naked eye and only recognisable as lung on careful microscopical examination. The parts taking their blood-supply from branches of the aorta cephalad of this point are either exceedingly rudimentary or represented only as membranes. On this theory we may even go further and explain why a greater development of the back of the head is present than of its ventral aspect. In the early stage of development the blood would flow in a cephalad direction along the dorsal aortæ, in the first instance only reaching the ventral parts after supplying those more dorsally placed. The dorsal supply would therefore be much better than the ventral, and hence it is that whereas the ventral part of the neck and upper part of the thorax are practically non-existent there is a well-marked attempt at development in the part of the scalp usually exists in the cardiac apparatus. As a subsidiary point it may be mentioned that the left umbilical artery supplied only the left lower limb, and had the circulation in the aorta followed the normal course then no blood could have passed to this limb and it would then have been undeveloped; as it is, the number of toes is greater than that on the other limb, as might be expected in a limb which has virtually an umbilical artery to itself and is, as regards blood-supply, independent. It is, perhaps, surprising that the development is not even still more perfect as compared with the rest of the body. The absence of the upper extremities and the fusion of the inner ends of the upper ribs may be put down to the imperfect development of the ventral ends of the second aortic arches, and the consequent absence of fully formed subclavian arteries involving, as it would, the internal mammary arteries—branches of the subclavians. Such abnormalities as the rectum opening into the bladder and the degree of epispadias associated with it are not unusual conditions apart from monsters of this type and are in this case dependent on bad blood-supply.

Observations.—1. That in the normal embryo there are two stages in the development of the circulatory system. (*a*) In the early stage there is the embryonic connexion with the yelk sac and the vitelline circulation. This consists of two dorsal vitelline arteries which pass cephalad from the umbilical opening at which they enter the abdomen and running along the posterior abdominal wall end in the dorsal part of the aortic arches. The future of these two vessels is that they begin to fuse near their caudal ends and so form a single aorta which at its thoracic end divides into two arches. At a still later stage one of these arches atrophies; this is normally the right, but, as in the present instance, it is sometimes the left. (*b*) The second element in the circulatory system of the embryo is the development of the cardiac apparatus. Two double tubes develop in the margins of the embryonic plate where it has been folded in under the head region. These tubes are formed in the mesoderm and as development proceeds the two mesodermic edges become approximated so that the tubes are lying side by side. The approximated edges gradually thin until the two tubes become one. The vitelline veins now grow forwards and open into the caudal end of the heart tube, while from the cephalic end two tubes grow out and inclining dorsally and slightly to one side each ultimately joins the vitelline artery of its own side to form the dorsal aorta. In the specimen under discussion it would seem as if the latter of these two circulations had never been developed or that, at least, it had never been connected with the former.

2. That this specimen shows a point which is of considerable surgical interest in cases of imperforate anus. When an incision is made in such cases to form an anus it not infrequently happens that it passes through into the peritoneal cavity. If this specimen be examined the reason of this accident will at once be appreciated, for the peritoneum is seen to pass not only between the rectum and the perineum but also between the bladder and the perineum. In cutting down, therefore, to find the rectum in cases of imperforate anus by the perineal route the surgeon must recognise the possibility of having not only to expose the peritoneum but also of having to cut through both a parietal and a visceral layer to expose the muscular wall of the rectum.

3. As the monster is anencephalic it is interesting to note that in the spinal cord there was a clearly defined central canal; further, to the upper end of the cord at its margins there was attached a membrane which probably represented the cerebral hemispheres.

SOME OBSERVATIONS ON 26 CONSECUTIVE CASES OF GASTRO-ENTEROSTOMY.[1]

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THE cases in the accompanying table include all those in which I have performed gastro-enterostomy in the General Hospital, Nottingham, during the past four years—that is, since Jan. 1st, 1901—together with those done in the nursing home during this period, and they are arranged in chronological order. Of the 26 cases 22 were operated on in the General Hospital. An analysis of the cases shows that the operation was performed for recent ulcer in 1 case, chronic ulcer in 11 cases, pyloric stenosis in 8 cases, and cancer in 6 cases.

The necessarily meagre account of the symptoms found in the table but feebly describes the miserable condition to which the majority of these patients were reduced or the years of suffering many had undergone prior to operation. The only case in the list that was operated on early is No. 21, where it was performed for recent ulcer with hæmatemesis. In every instance a coarse, palpable lesion of the stomach was found and all had been subjected to prolonged, unavailing medical treatment.

In looking back on these cases what strikes one most is the great benefit that has been almost uniformly obtained from the operation. When performed for simple chronic ulceration and its consequences brilliant results may be expected and from accumulated evidence I think one may say that the majority of such cases are not merely patched up but permanently cured. Unlike some operations it appears to be productive of nothing but good to the patients and leaves no disability as far as my experience goes. The rapid improvement and cessation of pain and vomiting after the operation would hardly be credited by anyone who had not seen it. Within three weeks one sees people who had been living on fluids and ejecting them freely, and in constant pain, eating the ordinary diet of the hospital, consisting of bread, meat, potatoes, &c. As a rule vomiting ceases from the time of operation. There may be some anæsthetic sickness, but that is all. Several of the patients never vomited again after its performance. The rapid increase in weight is also remarkable. Many of these people are dying slowly from starvation and in such an increase of 14 pounds in three weeks is not uncommon. If I were asked in which class of case the most striking improvement takes place I would say in those of old callous ulcer about the pylorus, with stenosis. They can be diagnosed by their long history, pain after food, vomiting at irregular intervals and in quantity, great emaciation, and stomach dilatation, indications of which are splashing and peristalsis from left to right, the latter being pathognomonic. It was very clear in Cases Nos. 12 and 16 and less evident in several others. Reference to the table shows that most of them had a long history, extending in some over a period of many years, during which time they were receiving medical treatment for the relief of an obstruction impossible to overcome by this means, while at least three, Nos. 5, 14, and 22, ultimately became cancerous—a strong argument against procrastination. I think one may say that sufficient evidence is now forthcoming to show that gastro-enterostomy is the best method of treatment that has been suggested for cases of this description and that it is curative in the majority of instances. In simple stenosis from healed ulcer it has an important rival in pyloroplasty; the latter, however, in the presence of chronic unhealed ulcer at the pylorus, is more difficult in its performance and less certain in its results.

An interesting question is what prospect the operation holds out in cases of "acute" ulcer in young women which medical treatment has failed to relieve. There is only one example in my list. The patient was a young woman, aged 25 years. In July, 1901, she was admitted into hospital with a perforated gastric ulcer. I operated ten hours after its occurrence and excised the ulcer. She remained without symptoms for a year, eating meat, &c., and enjoying good health. Latterly she again developed symptoms of ulcer, there being pain after food, frequent vomiting, and hæmatemesis. With these symptoms she was re-admitted in October last, being at that time very ill and getting worse in spite of treatment. I kept her under observation in the hospital for a month, feeding her almost entirely by the rectum. She made no progress during this time and as the taking of the simplest fluid food was followed by pain and vomiting I did a gastro-enterostomy on Nov. 15th. Three weeks from this time she was eating the ordinary diet of the hospital without sickness or discomfort and has remained free from stomach symptoms since. The ulcer was found some distance from the scar on the stomach wall of the previous operation and nearer the pylorus.

In deciding what best to do for this patient three factors had to be considered: first, the starvation and anæmia produced by the pain and vomiting; secondly, the hæmatemesis; and, thirdly, the risk of perforation. All the symptoms were progressing in spite of carefully conducted medical treatment and it was apparent that it was quite useless to persevere with this longer. The result has been most gratifying, for she is, I believe, cured of the ulcer and the risk of further bleeding or perforation. Whether this will be permanent is open to question. I suppose no operation can be relied on to prevent the patient developing another later, but the probability of recurrence is lessened by the permanent rest and drainage of the stomach and the diminution of the hyperacidity which exists in such cases. As the pylorus was not involved in this instance there exist two openings in the stomach capable of transmitting its contents. It happens that in a large number of the cases here related the ulcer was found at or about the pylorus and associated with stenosis, but I have now had for some years several patients under observation in whom gastro-enterostomy was performed for long-standing ulcer situated elsewhere in the

[1] An abstract of a paper read before the Nottingham Medico-Chirurgical Society on Feb. 1st, 1905.

TABLE GIVING PARTICULARS OF 26 CONSECUTIVE CASES OF GASTRO-ENTEROSTOMY.

No. of case.	Sex.	Age.	Date of operation.	Symptoms.	Condition found.	Result.	Remarks.
1	F.	34	Feb. 15th, 1901.	Pain after food and vomiting for a year. Stomach dilated to below the navel. Lump felt at the pylorus. Great loss of flesh.	Large chronic ulcer, involving the pylorus and causing stenosis.	R.	Left hospital on March 12th. Eating ordinary diet.
2	F.	50	May 10th, 1901.	Pain and vomiting after food for about a year. Occasional blood. Wasting. Cachexia.	Carcinoma of the pylorus and anterior wall of the stomach.	R.	Marked improvement after the operation with cessation of vomiting. Relief probably temporary.
3	F.	45	Oct. 18th, 1901.	Pain in the epigastrium and vomiting for three years. Vomiting now constant. Hæmatemesis. Dilated stomach.	Pyloric stenosis from chronic ulcer.	R.	Did not vomit after the operation.
4	M.	63	Nov. 12th, 1901.	Nine months' history of pain after food and vomiting. Coffee-ground vomit.	Extensive carcinoma of anterior wall of the stomach and pylorus.	R.	Temporary relief. Death four months later from exhaustion.
5	F.	44	Dec. 14th, 1901.	Long history of stomach trouble with recent marked increase in severity of symptoms, pain, vomiting, &c.	Extensive carcinoma. History pointed to a simple ulcer for years.	R.	Patient improved rapidly after the operation. She has since, however, died from the progress of the disease.
6	F.	38	Jan. 16th, 1902.	Pain. No hæmatemesis. Copious vomiting. Dilated stomach. Lump at the pylorus.	Chronic ulcer at the pylorus with stenosis, extending along posterior wall for one and a half inches.	R.	Taking ordinary food three weeks after the operation. Gained 14 pounds in the three weeks.
7	F.	36	May 14th, 1902.	Symptoms of dyspepsia for many years. Occasional vomiting. Stomach dilated three inches below the navel when full.	Pyloric stenosis, probably from healed ulcer. Much dilatation of the stomach.	R.	Patient never vomited after the operation. Eating ordinary food in three weeks.
8	F.	34	May 16th, 1902.	11 years' history of indigestion. Vomits large quantities. Stomach dilated. Small lump felt at the pylorus.	Ditto, with large chronic ulcer on the lesser curvature.	R.	Discharged a month later. Taking ordinary diet.
9	F.	37	June 14th, 1902.	Pain and vomiting for several years. Latterly worse. Dilated stomach. No pyloric swelling. Anæmia. Emaciation.	Large chronic ulcer at the pylorus, with stenosis.	D.	Death from broncho-pneumonia and cardiac failure.
10	F.	42	August 8th, 1902.	Pain after food for years which vomiting relieves. Gastric dilatation. Much emaciated.	Chronic ulcer at the pylorus and on the anterior wall of the stomach.	R.	Well.
11	F.	18	October, 1902.	Four years' pain after food and vomiting. Two attacks of hæmatemesis.	Thickening, indicating site of the ulcer on the lesser curvature.	R.	Cessation of pain and sickness. Patient's condition much improved.
12	M.	48	Nov. 11th, 1902.	Sickness and vomiting four years. Now vomiting daily. Dilatation of the stomach. Wasting.	Pyloric stenosis.	R.	Rapid general improvement. Stomach symptoms gone.
13	M.	50	Nov. 25th, 1902.	Vomiting for months. Pain relieved by vomiting. Dilatation of the stomach.	Carcinoma of the third part of the duodenum and glands.	R.	Patient did well. Pain and sickness ceased. Relief temporary.
14	M.	42	Dec. 15th, 1902.	Pain and vomiting for seven or eight years. Pain and vomiting now persistent. Vomit blood-stained and offensive. Rapid loss of flesh.	Carcinomatous ulcer at the pylorus; stomach wall and head of the pancreas involved. Probably simple originally.	D.	Lived 11 days. Bronchitis. Post mortem, gastro-enterostomy wound healed. Cancer of the pancreas.
15	M.	32	April 3rd, 1903.	Eight years' history of stomach trouble, pain, and vomiting. Several attacks of hæmatemesis.	Chronic ulcer near the pylorus.	R.	Complete relief of the symptoms.
16	F.	26	May 15th, 1903.	Pain after food and vomiting for three years, with several slight bleedings.	Large chronic ulcer at the pylorus involving posterior wall of the stomach.	R.	Cessation of the symptoms after the operation and rapid increase in weight. Entero-enterostomy.
17	M.	34	Oct. 16th, 1903.	Pain after food for four years, with severe hæmatemesis.	Large chronic ulcer extending from the pylorus half-way along the lesser curvature.	R.	Three months later the patient felt quite well and able to take ordinary food.
18	F.	27	Oct. 23rd, 1903.	History of epigastric pain, frequent sickness, wasting, anæmia, constipation. Stomach dilated.	Pyloric stenosis, the result of healed gastric ulcer.	R.	Symptoms abated; takes food well; put on flesh rapidly.
19	M.	44	Nov. 17th, 1903.	Pain and vomiting for several years. One attack of hæmatemesis.	Large chronic ulcer involving the great curvature and both the anterior and posterior walls of the stomach.	R.	Symptoms of gastric ulcer disappeared. Taking ordinary food. Entero-enterostomy.
20	M.	36	Nov. 11th, 1904.	Pain and vomiting for six years; no blood. Stomach dilated.	Stricture of the pylorus from healed ulcer.	R.	Cessation of symptoms. Patient is now well.
21	F.	25	Nov. 15th, 1904.	Patient was operated on for perforated gastric ulcer three years ago. Ulcer excised. Well for a year. Then recurrence of pain and vomiting. Latterly two severe bleedings.	Small round ulcer on the anterior wall near the pylorus.	R.	Patient has remained well since the operation. Symptoms gone. Can now take ordinary diet.
22	M.	58	Nov. 19th, 1904.	Indigestion 18 years. Latterly much worse. Pain, vomiting (coffee ground), great emaciation.	Large pyloric mass adherent to the liver. Adhesions separated. Pylorus involved and large ulcer with hard, heaped-up edges on the posterior wall spreading from the pylorus. Glands involved.	R.	Patient well. Symptoms gone. Can eat anything. Entero-enterostomy. Microscopic section of a removed gland showed carcinoma.
23	F.	42	Nov. 23rd, 1904.	Pain and vomiting for two years. Repeated bleedings. Dilatation of the stomach.	Callous ulcer on the lesser curvature near the cardiac end.	R.	Patient relieved of the stomach symptoms. Feels well. Takes ordinary food.
24	M.	36	Nov. 19th, 1904.	Pain and vomiting for four years. In hospital before with hæmatemesis. Marked dilatation.	Pyloric stenosis from an old ulcer.	R.	Well. Symptoms gone.
25	F.	39	Nov. 23rd, 1904.	Severe pain and vomiting. No bleeding or lump. Loss of flesh. Anæmia.	Chronic ulcer on the anterior wall. Transverse colon distended with scybala.	D.	Died on the eleventh day from chronic obstruction and debility.
26	F.	60	Dec. 11th, 1904.	Stomach symptoms for 20 years. For 10 or 12 has had signs of gradually increasing pyloric obstruction. Stomach greatly distended. Copious vomiting. Great emaciation.	Tight stenosis of the pylorus.	R.	Patient well. Eats anything. Rapid increase in weight.

stomach with a normal pylorus, and I have not observed in them any indications of interference either with the stomach functions or with the passage of food and they have remained free from digestive troubles.

Among the cases there are six of cancer. I have already drawn attention to the fact that three of the number, with histories extending over years, must have been simple ulcers originally and that they became cancerous for want of surgical treatment, and I need say nothing further on this point. I wish, however, to draw attention to the difficulty in diagnosing cancer of the stomach both before operation, at the time, and even afterwards by means of the microscope. It is well known that it is no easy matter to make an early diagnosis and yet this is essential, as the ideal operation here is partial gastrectomy, which is quite possibly curative, as distinguished from gastro-enterostomy, which can only be palliative. In any doubtful case it is worth while to make an incision and to inspect the stomach, this being devoid of risk, while if one waits until the diagnosis is quite clear the patient will be found ready for the post-mortem room rather than the operating theatre.

Concerning the difficulty of diagnosis at the time and after, there are several cases on the list which appeared to be cancer to both sight and touch which I now know by the clinical results could not have been so and are therefore not thus described in the table. In No. 8, for instance, there was a hard ulcerated lump at the pylorus, producing stenosis, from which an infiltrating mass spread along the lesser curvature, with large, hard, pyloric glands. This patient was sent into hospital by Mr. E. V. Eames of Heanor and was operated on in May, 1902, nearly three years ago, and I have recently heard from him that she is in good health and free from stomach trouble. Another very similar example was No. 19, with also what appeared to be a typical cancerous mass at the pyloric end. He was in good health and free from digestive trouble six months later and told to come back if he became ill again. I have not seen him since but I take it that this could not have been cancer.

Two other cases had a microscopic examination made of a growth, cancerous to the naked eye, and confirmed by the microscope. One of them does not belong to the group I am considering in this paper. It was that was of a middle-aged man, sent to me by Dr. G. A. Robinson of Nottingham, from whom I removed almost the whole of the stomach, the gall-bladder, and a lot of enlarged glands for a growth, apparently cancerous, involving the pyloric half of the viscus and the fundus of the gall-bladder, to which it was adherent. A portion of the growth was sent for microscopic examination and reported to be carcinoma. The operation was performed in the General Hospital in February, 1903. The patient made an uninterrupted recovery and has since been shown on two occasions at meetings of the Nottingham Medico-Chirurgical Society, the last being on the first anniversary of the operation. It is now two years since its performance and he is quite free from stomach trouble and able to eat any kind of food. He also tells me that he is able to take as much at a meal as ever he could, which is remarkable, as the remnant of stomach left did not exceed the size of an ordinary sausage. Taking the case as it stands one must classify it among the cancers, but the result is certainly surprising and I have a suspicion that, after all, it may have been inflammatory. Some weeks ago this man died after a few months' illness with a growth originating in the pelvis, apparently in connexion with the prostate. No post-mortem examination could be obtained.

The second case, No. 22 in the table, is also a puzzling one and I hope to keep the patient under observation. The history is as follows. He had suffered from indigestion since he was 25 years of age and when seen was 58 years old. He was treated at the hospital for gastric ulcer 18 years ago, when he had two attacks of hæmatemesis and had suffered with his stomach ever since. In February, 1904, he became much worse with constant pain after food, irregular vomiting, occasional slight hæmatemesis and at times coffee-ground vomit, and rapid loss of flesh. He became so weak that for six months before admission he had been quite unable to work. At the time of operation a large firm adhesion was found between the pylorus and the under surface of the liver. The pylorus was stenosed by a large crateriform ulcer which spread away from it on the posterior wall for about three inches, having markedly hard, heaped-up walls. In the right edge of the great omentum were some large, hard glands, of the size of nuts, which were removed for microscopic examination. The disease appeared to be cancerous but as it was extremely improbable that he would stand an operation for complete removal a gastro-enterostomy was performed. The glands were examined by the Clinical Research Association and found to be cancerous. The patient was admitted under the care of my colleague, Dr. W. B. Ransom, who transferred him to me for operation. At the present time, ten months after operation, he expresses himself as feeling quite well. He is without stomach symptoms for the first time for many years and is able to take any kind of food, including pork and stout. He has put on three stones in weight and is hardly recognisable as the same man he was before operation. The disease was very extensive, and if carcinoma it is remarkable that he should keep as well as he is. In my other cases of carcinoma of the stomach, where death ultimately took place, I have seen no such striking improvement as this, and I suspect, therefore, that in spite of the clinical and microscopical evidence the disease may also turn out to be inflammatory. It would appear from this that it is often very difficult to say in certain cases of chronic ulcer of the stomach whether the disease is malignant or not even after the most complete examination has been made, and in such cases if the disease is extensive, and the patient is enfeebled and not likely to stand the more severe operation of gastrectomy, it is quite worth while to do a gastro-enterostomy and thus to give him the benefit of the doubt.

With respect to the operation itself, posterior gastro-enterostomy has been the one performed in all the cases here related, and in all the anastomosis has been effected by simple suturing, without any kind of instrumental aid. The objections to instrumental aids are obvious. Not only is a foreign body left in the anastomotic wound but the size of the opening has to correspond with the dimensions of the bobbin or button and not with the idea of the operator as to what is necessary in the particular case. With simple suturing the operator can make the opening as large as he likes and it is always an advantage to have a free opening and especially so in those cases where there is marked dilatation of the stomach and a probability of a gradual contraction. Too small an opening is a late but recognised cause of failure and it is a serious one, as it is most difficult to rectify afterwards.

Of regurgitant vomiting I have, fortunately, had no experience. In three cases, Nos. 16, 19, and 22, where after the completion of the gastro-enterostomy I thought there might be trouble with the anastomosis, I supplemented it by an entero-enterostomy. This is simple in its performance and effectual in its result. Its only drawback appears to be that it adds about ten minutes or so to the length of the operation. It does not appear to add to the risk and I should advise its employment when the operator is not quite satisfied with the lie of the parts after the stomach anastomosis has been completed. That was my reason for adopting it in these cases. In all of them there was a large ulcer involving the posterior wall of the stomach at the pyloric end, so that the anastomosis had to be made well to the cardiac side, occasioning considerably more displacement than is usually the case.

There are three deaths to record in the 26 cases, showing a mortality of nearly 12 per cent. This appears too high when compared with the brilliant results obtained by Mayo Robson, Moynihan, and others, but it must be remembered that in none of these cases was the fatal issue the direct outcome of the operation—that is, none were due to leakage, peritonitis, or regurgitant vomiting. In the first case, No. 9, the patient died from broncho-pneumonia and cardiac failure. She had no abdominal trouble and was taking fluid foods by the mouth. Her enfeebled condition, plus the pneumonia, produced an attack of cardiac syncope from which she died suddenly. In the second case, No. 14, the patient lived 11 days. At the post-mortem examination the gastro enterostomy wound was found to be healed and the pancreas was cancerous, the condition found precluding the possibility of ultimate recovery. In the third case the patient died from intestinal obstruction due to the impaction of fæces in the colon, a very unusual complication. At the time of operation the transverse colon was found to be distended with scybalous masses of fæces, from which I feared we might have trouble. At the end of a week she was fairly well and taking chicken broth, plain milk, Benger's food, and custard pudding without vomiting. The bowels had not acted in spite of repeated enemata and the rectum was empty.

Scybalous masses could be seen and felt in the colon through the wasted abdominal wall. My colleague Dr. F. H. Jacob saw her on several occasions at this time. Symptoms of obstruction came on suddenly after aperients by the mouth. As she was getting worse and the pulse-rate was beginning to run up, after some consideration I opened the wound. The anastomosis was sound and the parts were in good position. There was no peritonitis or obstruction of the small bowel. The transverse and descending colon were distended with firm faeculent masses and I pushed a number along into the sigmoid, hoping that this might stimulate the bowel to action. The colon appeared to be a regular cesspit and had completely lost the power of propelling its contents. I never succeeded in getting the bowels to open and the case ended fatally as stated.

By the performance of earlier operations, before the patients are completely worn out by suffering and starvation (a plight to which the majority of these cases were reduced), better results may be hoped for and the mortality in the hands of operators familiar with abdominal surgery will probably work out at not more than 5 per cent.

Nottingham.

A CASE OF EMPYEMA IN THE POSTERIOR ETHMOIDAL LABYRINTH WITH PARALYSIS OF THE CONJUGATE MOVEMENTS OF THE EYES AND BI-TEMPORAL LIMITATION OF THE VISUAL FIELDS.

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AND
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A FEMALE patient, aged 19 years, healthy-looking and well developed, presented herself at the Birmingham Eye Hospital on Jan. 20th, 1905. She complained that she had been obliged to give up her occupation as a telephone clerk because she was no longer able to see the keys on the telephone board, especially those on the right hand. Her family history and her personal history previously to the affection of the eyes were good. There was nothing of a hereditary nature. Apparently the disturbance of vision began with a severe attack of influenza at Christmas. The first thing noticed was that objects could not be seen with accustomed clearness. This was accompanied by pain at the back of the right eye and persistent headache described as neuralgic in character. At the end of December the patient observed that she had to turn her head to the right side in order to see things on that side. She also noticed some difficulty in seeing objects on the left side.

On Jan. 20th the following conditions were found on examination: R.V. $\frac{6}{9}$; L.V. $\frac{6}{6}$. The correction of a hypermetropia of + 0·50 D. sph. did not improve the vision. It may be added here that according to a note of a previous visit to the hospital in 1899, vision was then $\frac{6}{9}$, with + 1·5 D. sph., in both eyes. The visual fields for white were tested and the right one was found to be limited on the temporal side by about 50°. The left one was also contracted on the temporal side but only to the extent of about 30° (see Figs. 1 and 2). As regards the ocular movements, when the patient attempted to look to the right neither the right nor the left eye could be moved beyond the middle line. The excursion of the eyes to the left was complete but at the extreme limit a horizontal, slow, nystagmoid movement appeared in both eyes. The upward and downward movements were normal. There was no diplopia. Light and accommodation reflexes were normal. The pupils were of equal size. The fundus of each eye presented a normal appearance. There was no sign of neuritis. The patellar reflexes were brisk. When the eyes were closed the patient swayed slightly but scarcely sufficiently to be considered pathological. We are indebted to Mr. H. Eales for permission to publish these particulars.

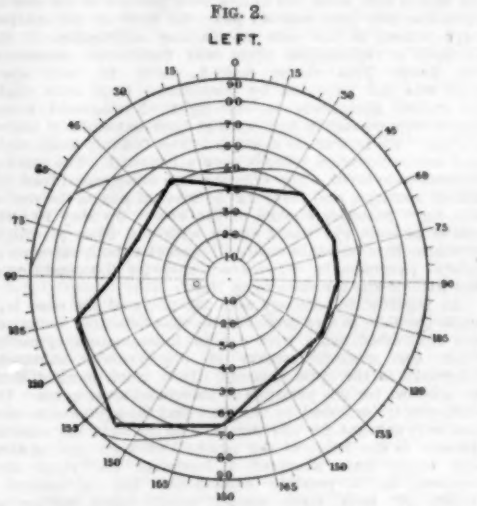
The diagnosis presented some difficulties. The comparatively rapid onset of the symptoms was suggestive of an inflammatory lesion and the character of the fields seemed to point to the ethmoidal or sphenoidal sinuses as the primary seat of the lesion, yet, as will be seen, there was very little evidence of disease in these regions. Then, again, the presence of an ethmoidal or sphenoidal sinus empyema could not, it seemed to us, account for the paralysis of associated movements. The patient was given 30 grains of

FIG. 1.

potassium iodide per diem (which was continued up to the time of operation) and she was referred to the Ear and Throat Hospital for examination of the sinuses in question.

On Jan. 31st the nasal cavities were examined by anterior rhinoscopy. There was no enlargement of the middle turbinals, or œdema, or polypus formation, and no purulent secretion was seen. By posterior rhinoscopy, however, a slight yet distinct collection of muco-pus was seen on the

FIG. 2.



roof of the posterior choana of the nose on the right side. The maxillary antra on electric transillumination transmitted light clearly. The pus was removed by irrigation with a warm alkaline lotion and the patient was asked to return in a few days. On Feb. 3rd she was again seen and gave a further history that she was in the habit of spitting up phlegm from the throat every morning, that she had a dull aching sensation in the head and a feeling of weight over the eyes, that she saw double at times, and was still unable

to see objects on her right side without turning her head. The left field of vision was found to have regained its full limits and the right had now only 20° of contraction. The right vision was $\frac{6}{9}$ partly and the left was $\frac{6}{6}$. The eyes could not be turned to the right beyond the middle line. No diplopia was present nor could any be elicited by coloured glasses. Through Killian's long speculum a small collection of pus could be seen in the region of the right sphenoethmoidal recess. The sphenoidal opening was not visible owing to the narrowness of the middle meatus from deviation of the nasal septum to the right side. By posterior rhinoscopy the streak of pus was again seen on the roof of the right posterior choana. There was no inflammation of the pharyngeal tonsil or any other obvious source of the purulent secretion. Although the condition of the patient had considerably improved it was considered advisable to expose the ostium of the sphenoidal sinus and at the same time to open the posterior ethmoidal labyrinth on the right side.

On Feb. 15th, as the symptoms persisted, the patient was prepared for operation. The lining mucous membrane of the middle meatus of the right side of the nose was contracted as far as possible with cocaine and adrenalin and a small tampon soaked in adrenalin was packed between the posterior end of the middle turbinal and the septum for ten minutes and then removed. Ethyl chloride, as a general anæsthetic, was administered with the patient in the sitting posture. The posterior third of the middle turbinal was cut away from its attachment with Grünwald's forceps, and the posterior part of the ethmoidal labyrinth was opened with an angled curette. Only about a drop of pus appeared as the curette was removed. There was no pus at the sphenoidal ostium.

On the next day the patient was able to see more on the right side and did not require to turn her head as much as before. The pain in the head had subsided and she remarked that her eyes felt better. On inspection, some purulent secretion was seen flowing from the site of operation into the middle meatus. On Feb. 21st the left field of vision appeared to be normal and the right was nearly so; there was only a deficiency of 10°. The right vision was $\frac{6}{9}$ and the left was $\frac{6}{9}$ partly. The fundus showed nothing pathological in either eye as before. The eyes could be moved to the right for some distance beyond the middle line but not yet completely. Nystagmoid movements supervened in both eyes when looking to the extreme left, but only in the left eye when looking to the right. There was no diplopia. On March 21st some dry crusts were present at the site of operation but there was no pus. In view of the marked improvement in the case no further exploration of the ethmoid or sphenoidal sinus was considered necessary. On March 27th vision was $\frac{6}{9}$ partly in both eyes. This was not improved by correction. Both eyes could be turned completely to the right. Nystagmoid movements were present in both eyes at both extremes of lateral motion. There was no diplopia. The fundus, fields, light and accommodation reflexes were all normal. The patellar reflexes were brisk. The crusting had disappeared from the site of operation and there was no trace of pus on the roof of the right posterior choana of the nose. On May 19th the vision in each eye was $\frac{6}{9}$ partly, with $+ 0{\cdot}25 = \frac{6}{6}$. Slight nystagmoid movements were still present at both extremes of lateral excursion in either eye; otherwise the condition of the patient was the same as on March 27th.

As regards the etiology and pathology of the case it is quite possible, in fact probable, that the defective vision and the contracted fields were due to inflammation spreading from the muco-periosteum of the posterior ethmoidal labyrinth to the optic chiasma. It is much more difficult to account for the paralysis of associated movements. The difficulty is increased by the fact that the explanation must not only account for the paralysis to the right but also the paresis to the left. If the former had been present alone one might have accepted a lesion of the right sixth nucleus as a possible coincidence but to assume a lesion of both sixth nuclei would seem rather unsatisfactory even as a coincidence. In the present state of our knowledge, however, it does not appear possible to solve the problem correctly. One fact merits special attention. The right field of vision corresponding to the right association paralysis was more impaired than the left field and there was only a paresis of the left association movements corresponding to the left field of vision. This would tend to show: (1) that the lesions of the fields and the ocular movements bear some relation to each other; and (2) that if the empyema produced the former it was the probable cause of the latter also. Thus our considerations bring us back again to the optic chiasma and here there is not much choice in placing the lesion; the commissure of Gudden is the only position in which a lesion might account for the affection of the associated movements. Unfortunately, we possess at present no precise information regarding the functions of this commissure.

We hope that the case may prove a starting point towards gaining some information in this direction.

Birmingham.

THE NOTIFICATION OF PULMONARY TUBERCULOSIS IN BLACKBURN.

BY ALFRED GREENWOOD, M.D. VICT., D.P.H. R.C.P.S.I.,
MEDICAL OFFICER OF HEALTH OF BLACKBURN.

IT has now been fully established that pulmonary tuberculosis is a bacillary disease, that it is transmissible from person to person, and that by suitable precautions in the early stages it is curable. Each medical man has under his care at one time or another cases of early pulmonary tuberculosis which are curable under favourable conditions and also cases of advanced pulmonary tuberculosis which not only are incurable but which in many houses are a source of the greatest possible danger to the other inmates. Hence this alternative presents itself: whether the early cases should have the advantage of sanatorium treatment for the purpose of being cured or whether the late, hopeless cases could be isolated away from home in some way so that they may cease to act as dangerous foci for the spread of this disease. Whichever of these two measures be adopted, especially if the aid of the local authority in this direction be invoked, it appears to me that certain information concerning the existing number of cases, the fresh number of cases occurring annually, and the distribution of the cases in the town should be obtained. This information involves a notification of the disease. Formerly the only means of ascertaining the prevalence of pulmonary tuberculosis in a given town was by means of the death returns. This was very unsatisfactory, because the information as to prevalence thus gained was very incomplete and early cases had no opportunity of receiving benefit from any municipal measures. The system of voluntary notification was then adopted in many towns and was first commenced in Blackburn during April, 1901. The following figures indicate the number of deaths from pulmonary tuberculosis and the number of notifications during 1901, 1902, 1903, 1904, and the first six months of 1905:—

Table showing the Number of Deaths from Pulmonary Tuberculosis and the Number of Notifications during 1901, 1902, 1903, 1904, and the Six Months ending June, 1905.

Months.	1901		1902		1903		1904		1905	
	Deaths.	Notifications.	Deaths.	Notifications.	Deaths.	Notifications.	Deaths.	Notifications.	Deaths.	Notifications.
January	10	—	16	3	9	7	11	9	9	19
February ...	12	—	12	4	13	12	11	5	16	17
March	10	—	15	7	18	14	8	11	12	14
April	16	14	14	4	14	7	8	8	12	13
May	11	13	18	4	13	6	9	9	17	18
June...	13	5	11	7	9	14	7	14	13	17
July	12	12	10	6	7	16	13	11	—	—
August	15	4	12	5	8	10	6	6	—	—
September ...	11	3	7	4	6	21	8	20	—	—
October	14	6	11	16	9	6	15	14	—	—
November ...	13	10	20	16	2	6	13	3	—	—
December ...	9	7	7	9	12	15	11	16	—	—
Totals ...	146	79	153	85	120	134	120	126	79	98

Of the 146 deaths in 1901, 30, or 20·5 per cent., had been notified during life; of the 153 deaths in 1902, 44, or 28·7 per cent.; of the 120 deaths in 1903, 31, or 25·4 per cent.; and of the 120 deaths in 1904, 51, or 42·5 per cent.

It may be of some interest if I state briefly the action which has been taken in order that a more complete notification of this disease might be insured. In July, 1902, a letter was sent to each medical practitioner in the borough reminding him that pulmonary tuberculosis was a voluntarily notifiable disease in Blackburn and that a fee of 2*s.* 6*d.* was payable for each case. In the same communication it was stated that notification of pulmonary tuberculosis would result in a knowledge of the origin and distribution of the same and that certain preventive measures might be recommended. A promise was also made that all inquiries would be conducted in such a way that neither the medical attendant nor the patient would be inconvenienced in the slightest degree. In August, 1903, a further communication was sent to the effect that voluntary notification of phthisis in Blackburn, so far, had not been a success and that it appeared to the medical officer that one reason for this might be the unwillingness of many patients to receive a visit from any official of the health department. In order to abolish this objection I issued to each medical practitioner in the town a triple notification form especially prepared for pulmonary tuberculosis and containing the following requests from the practitioner to myself: "1. Take any step that is conveniently possible to stop the spread of infection. 2. Take no step in this case until after consultation with me. 3. Leave the steps to be taken in this case altogether to me and I will be responsible for the instructions respecting destruction of sputum, ventilation of bedroom, &c." When notifying a case the medical attendant could strike out any two of the above three requests which were not intended to apply. An offer was also made to examine any specimens of sputum for tubercle bacilli which might be submitted. This communication resulted in an increase in the number of notifications in September, 1903, but the increase was not sustained. In November, 1904, two tins for the collection of sputum were supplied to each medical practitioner in the town. These tins bore a label containing the following particulars:—

BLACKBURN.

To Dr. **GREENWOOD**, Medical Superintendent, Fever Hospital.

Name of Doctor..... *Address of Patient*.....
" " *Patient*..... *Sex of Patient*.....
Age of Patient..... *Occupation of Patient*.....

DIRECTIONS.

1.—Collect the early morning sputum coughed up before breakfast. Material from the lungs is required, and not saliva from the mouth.
2.—Do not more than half fill the tin.
3.—Do not add any disinfectant.
4.—Be careful not to soil the outside of the tin.

N.B.—Food particles in the specimen seriously interfere with the examination.

I must now candidly confess that I have done everything I could think of to make the voluntary notification of pulmonary tuberculosis in Blackburn a success. The other preventive measures at present include visitation of infected houses—only when allowed by the medical attendant—printed precautions, and disinfection when agreed to by the householder. At the same time, if medical men cannot report all cases of pulmonary tuberculosis I would say that the cases which it is most important that the medical officer of health should have information about are cases of pulmonary tuberculosis occurring in the poorer parts of the town where isolation is very difficult to carry out, and where there may be patients in an advanced stage of the disease expectorating large quantities of infective sputum to the extreme danger of other persons. It is *not* so important to report phthisical patients who are in good circumstances and who understand and will carry out the principles of isolation as regards sleeping, destruction of sputum, &c.

I will now refer to the question of compulsory notification of pulmonary tuberculosis and will say at once that I am not prepared to advise the adoption of this measure in Blackburn at the present time. I believe that voluntary notification should have a more extended trial and that it should be more vigorously carried out in future than it is at present. As regards compulsory notification, pulmonary tuberculosis is in a different position compared with other infectious diseases. A medical man would not think of preventing a patient in an early stage of pulmonary tuberculosis from exposing himself in public, from riding in a hansom cab, or from following his work, as in the case of scarlet fever or diphtheria. Sheffield is the only town where the compulsory notification of pulmonary tuberculosis is in force, and the Act in question requires the notification of every case, giving the name, age, sex, place of residence, and occupation of the person affected, and stating whether the case occurs in the private practice of the practitioner so notifying or in his practice as medical officer of any hospital, public body, friendly or other society or institution. A penalty for failure to notify is a fine not exceeding 40*s.* The usual notification fee is paid. The usual cleansing and disinfecting powers which apply to scarlet fever, &c., also apply to pulmonary tuberculosis in Sheffield. Apart from this it is, however, stated that "No provisions contained in any general or local Act of Parliament relating to infectious disease shall apply to tuberculosis of the lung or proceedings relating thereto under this section." It seems to me, however, that in Blackburn we would have all that might be wished for if the voluntary notification of pulmonary tuberculosis could be attended to more strictly and if a suitable class of case, such as I have indicated, could be notified.

I have not referred to such other questions as the educational advantages to phthisical patients from a few weeks' stay in a sanatorium, or as to the share of cost of erection of sanatoriums by sanitary authorities of county boroughs and county councils, or by boards of guardians, as these do not bear strictly upon the subject of notification. The point which I wish to emphasise is that notification of pulmonary tuberculosis should be as complete as possible, before consideration of the question of erecting a sanatorium for these patients.

Blackburn.

COMPLETE EXTIRPATION OF THE PENIS FOR EPITHELIOMA IN A HAWAIIAN, AGED 28 YEARS; RECOVERY.

BY EDWARD H. ARMITAGE, M.D. DURH., M.R.C.S. ENG., L.R.C.P. LOND., D.P.H. CANTAB.

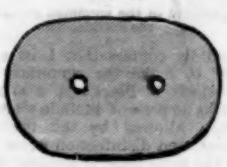
ON July 7th, 1904, I was consulted for the first time by a man, a half-white, who complained that his penis was being "eaten away." On examination I found that the prepuce could be retracted to a very slight degree, revealing a hard, warty growth which secreted a whitish, ill-smelling fluid. There was no induration of the body of the penis but the glands in the left inguinal region formed a large, elongated, indurated mass above Poupart's ligament, adherent to each other but not to the skin. The patient was a tall, stout, well-developed man whose face bore a somewhat cachectic appearance; his height was 5 feet 10½ inches and his weight was 175 pounds, but he thought that he had recently lost weight. His father, an Englishman, died from alcoholism when the patient was very young; his mother, a Hawaiian, had married again, had had healthy children, and was still alive and well. There was no history of cancer in his family. As far back as he could remember he had suffered from phimosis, never having been able to retract the prepuce further than half the length of the glans. When 16 or 18 years of age he suffered from gonorrhœa on three or four occasions and when 20 years of age passed some pus and blood from his penis. He had never suffered from syphilis. He was formerly a heavy drinker but had for some years been a total abstainer. Six or seven years ago he first noticed a small pimple on the left side of the glans penis midway between the meatus and the corona which formed a sore and healed again; this occurred subsequently on several occasions until, four months ago, the sore refused to heal, and a lump formed which gradually increased, and for four weeks he had been unable to retract his prepuce beyond a very slight distance. On his left shin there was a large patch of impetiginous eczema, about ten inches long by four inches broad, covered by thick brownish scabs, beneath which healing was taking place. This had been neglected for two weeks. Latterly he had felt some pain in the penile sore. Previously to consulting me the patient had been under the care of a white physician "who gave him something which healed up the sore," under a Chinese practitioner, and under a Kahuna or native medicine man of some repute. His urine contained neither albumin nor sugar and the heart sounds were normal. I diagnosed epithelioma of the glans penis and proposed operation for the following day; but since the patient had some domestic and business affairs which

required his attention it was agreed to postpone the operation to the day after.

On July 8th I saw the patient again in consultation with my friend Dr. Tsugio Uemura of Wailuku, who agreed with my diagnosis. After anæsthetising the part with a 20 per cent. solution of cocaine hydrochlorate I made a scraping of the surface of the growth which I submitted to microscopical examination; this showed only pus cells and a few scales of squamous epithelium and the patient became so faint after the manipulation that I did not remove more of the growth, considering the clinical evidence as quite sufficient. That afternoon the patient entered the Malulani Hospital and was prepared for operation. At 11 A.M. on the 9th I proceeded to operate. Dr. Tsugio Uemura administered chloroform, while Dr. Kikujiro Soga of Paia assisted me. The last-named gentleman had deferred his diagnosis until the growth had been more fully exposed, when he quite agreed with us. The prepuce having been slit up along the dorsum and separated from the adhesions which it had formed to the growth the latter was fully exposed. A flat ulcerated growth, with hard, slightly raised borders and papillated surface, extended over the left side of the glans from the corona to within two millimetres of the meatus; it had infiltrated the left side of the prepuce, secreted a thin whitish fluid, and bled easily on scraping. The instruments used having been discarded the growth was thoroughly cauterised with strong nitric acid, neutralised afterwards with solution of bicarbonate of sodium, and then thoroughly swabbed with carbolic acid and the penis was enveloped in gauze. After preparation of the area of operation, the patient being placed in the lithotomy position, the scrotum was split from the root of the penis down to an inch of the central point of the perineum. The incision was deepened to the bulbous urethra, which was separated from the corpora cavernosa, divided, dissected downwards, clamped by pressure forceps, and left hanging from the posterior angle of the wound. The anterior end of the scrotal incision was then prolonged round each side of the penis, thus encircling that organ, deepened, and the suspensory ligament of the penis divided; the dorsal arteries of the penis did not require ligature. The halves of the scrotum being separated the crura of the penis were removed from the ischio-pubic rami by means of elevator, knife, and scissors. This was the most difficult portion of the operation, partly owing to the strong attachment of the crura. Mr. W. H. A. Jacobson states in his work, "Diseases of the Male Organs of Generation," that on one occasion he broke a periosteal elevator at this stage—partly owing to the hæmorrhage which was profuse. The arteries to the crura arising from the internal pudic arteries pierce the anterior layer of the triangular ligament close to the bone, thus rendering their seizure and ligature a matter of considerable difficulty. Finally, this was accomplished and a little further dissection removed the penis together with its crura *en masse*. By means of a curved incision from a point internal to the anterior superior spine of the ilium to the external ring I turned down a flap on the left side and removed the enlarged glands embedded in fat; owing to the necessity of keeping wide of the disease this flap was left very thin. The left testicle was then removed, the cord allowed to pass into the inguinal canal, and the pillars of the external ring approximated by a single suture of silk. By a similar incision the right inguinal region, in which no glands could be felt, was cleared of lymphatic tissue but the right testicle was retained. A large amount of redundant scrotal tissue was then removed and after copious irrigation the large wound was closed, the inguinal flaps being approximated by silk sutures, and the scrotal and perineal wound by silkworm gut. The urethra was cut to an appropriate length, split above and below, the two flaps being secured to the skin by chromicised gut sutures; one rubber drainage-tube was placed above the pubes at the point of junction of the three incisions. The wound was dressed with iodoform gauze and absorbent wool, supported by a double spica bandage a separate dressing being placed over the lower portion of the perineal wound, to be removed and replaced whenever he passed urine. The patient, who had borne the anæsthetic and prolonged operation well, was removed to his bed; a quarter of a grain of morphine was administered hypodermically, followed by another later in the evening.

The highest point reached by the temperature was 100·6° F. on the following day, after which it gradually descended to normal. On two or three occasions the patient had difficulty in passing his urine; this was relieved by injection of a mixture of cocaine hydrochlorate 20 per cent. and adrenalin chloride $\frac{1}{10}$th per cent. On the 18th the sutures were removed under an anæsthetic. Healing had taken place by first intention, except at one portion of the left inguinal incision and about the site of the drainage tube, which had been removed on the 11th. He vomited a good deal after the anæsthetic. Sloughing of a large portion of the left inguinal flap took place and of the tissues round the site of the drainage tube, but there was no constitutional disturbance and the axillary temperature never reached 99° F. The dead tissues were gradually removed and the wound was carefully dressed. On August 3rd, the twenty-fifth day after the operation, the ulcer was sufficiently clean for further operative treatment. It measured four and a half inches long, extending from the site of the drainage-tube, slightly beyond the middle line, in a direction towards the anterior superior spine of the ilium, a pocket extending beneath the skin in this direction for about one and a half inches further and measuring in its widest part two and a half inches. Healing by Thiersch's grafts seemed to me to be impracticable in this situation and I decided to close the wound by undermining and gliding together the skin and subcutaneous tissues. For this purpose I had made for me by a local tinsmith a number of the leaden buttons introduced by Lord Lister, but fearing that a single wire would be incapable of supporting the excessive strain thrown upon it I designed and had made for me by the same Japanese artisan the button depicted in Fig. 1, which I have not seen previously described and which, I venture to think, will prove to be more generally useful in this class of cases. As will be seen it is an elongated piece of sheet lead measuring 33 millimetres in the longest diameter by 22 millimetres in the shortest diameter, one millimetre in thickness, and is somewhat rounded. In its long diameter are two apertures two millimetres in diameter, separated from each other by a distance of ten millimetres, and equidistant from the margins of the button. The advantages which I claim for it are that two strands of wire being employed in the form of a quilt suture the tension on the single wire is reduced by half; that it is easily applied, accommodates itself to the contour of the surface on which it lies, and that the ends of the wire being drawn tight are twisted over the one button, the loop lying over the other, and thus securing very firm coaptation of the opposing surfaces. It is advisable not to have it made thicker, but the increase of size of course matters little, there being less likelihood of sloughing of the underlying skin the larger within reasonable limits the button is made.

FIG. 1.



The button.

On August 4th Dr. Uemura administered chloroform and I proceeded to repair the gap in the abdominal wall. Fig. 2 shows the condition of the scrotum and perineum at this date. The scrotal wound is healed throughout, with the exception of a small exuberant granulation at the upper part, which disappeared later after cauterisation. The irregularity in the curve of the skin of the abdomen shows the lower limit of the defect where the ulcer is packed with gauze. A catheter has been passed in order to demonstrate the position of the new urethral orifice. Having slit up the pocket in the external angle of the defect, pared the edges of the skin all round, and carefully curetted the surface of the ulcer, the skin and subcutaneous tissues were undermined in every direction between these and the deep fascia, this undermining being carried out to a much greater distance on the abdomen than beneath the tissues of the femoral region where it was limited as much as possible. The extent of the undermining of the skin and subcutaneous tissues of the abdomen may be judged of by the fact that in order to avoid stretching of the newly formed cicatrix in the right inguinal region I found it necessary to place the lower right button on the outer side of this, thus drawing the cicatrix towards the middle line of the body. Great traction was required to obtain coaptation of the

opposing margins of the gap; one wire and two silkworm-gut relaxation sutures were inserted and union of the skin was completed by a continuous button-hole suture, twice interrupted, whilst interrupted sutures of silkworm gut were used to unite the pubic portion of the ulcer. A Liston's long splint was applied to the left leg. During the operation, and particularly towards its termination, the patient vomited repeatedly, demonstrating the efficacy of the sutures by the great strain thrown on them. This vomiting continued more

FIG. 2.

or less for nearly three days. The highest temperature attained was 100° F. on the afternoon of the next day; on the day following it was normal. When, on the seventh day after the operation the button and silk sutures were removed, healing had taken place by first intention and only a very small portion of the wound remained ununited, allowing of the escape of some blood-stained serum. Two days later the rest of the sutures were removed with the exception of two or three over the pubes and the patient was allowed to sit up. Slight œdema of the left foot appeared, doubtless due to pressure on the saphenous opening; this lasted for some time. There were also considerable difficulty in walking and a feeling of tightness in the left thigh and groin for a considerable period. Healing of the ununited portion of the skin was uneventful. The parts on August 24th, the day prior to his leaving the hospital, were all healed with the exception of a small aperture of the size of a large pin-head which still remained in the left groin but healed up later. On Sept. 16th a silk suture appeared from a minute aperture in the pubic region which came out on traction; I took it to be the suture which had united the pillars of the external ring. On Oct. 3rd the patient, who had been gradually regaining strength, returned to his work with the parts completely healed. Since then he has been constantly engaged in his employment and there has been no sign of recurrence of the disease. I supplied him with a curved metal tube, to one end of which a copper funnel was soldered; this he has never attempted to use. He has perfect control over his urine which he passes without difficulty.

Remarks.—The comparative youth of the patient, 28 years, is a remarkable feature in the above case, but as is pointed out by Mr. Jacobson, still younger cases have been reported. The influence of phimosis as a predisposing cause is a particularly well-marked feature. As regards the question of castration in these cases, there appears to be some difference of opinion between authorities. My friend and former teacher, Mr. Jacobson, advocates the removal of both testicles as conducing greatly to the comfort of the patient; unfortunately, I have only the first edition of his work[1] at hand, and it is quite possible that his former opinion may have changed. At all events, I think that at the present day it is almost generally recognised by surgeons that the retention of one testicle in the male is as important as that of one ovary in the female, suicide from mental depression having resulted in some instances where both testicles have been removed. On the other hand, Mr. W. Watson Cheyne and Mr. F. F. Burghard[2] appear to be in favour of retaining both testicles. From my experience in this case it seems to me better that only one testicle should be retained, for the following reasons. A large amount of loose scrotal tissue which, in the circumstances, would be a source of discomfort to the patient is removed and the remaining testicle is firmly braced up in the middle line; further, one testicle is quite sufficient for the purpose of internal secretion, for which reason it has been retained. As an illustration of the polyglottic character of the community in which I reside it may be of interest to mention that the patient is a Hawaiian and since annexation of these islands by the United States, an American citizen; of the two attendants who are seen in Fig. 2, the one on his right is a Japanese and the other on his left is a Portuguese; the two gentlemen who so ably assisted me in the operation are Japanese; I am an Englishman, whilst the hospital cook who prepared the patient's food is a Chinaman.

Wailuku, Maui, Territory of Hawaii, U.S.A.

[1] The Diseases of the Male Organs of Generation, 1893, p. 731.

NOTE ON TWO INTERESTING CASES OF IMBECILITY WITH EPILEPSY.

BY R. G. WHITE, M.A., B.SC., M.B. GLASG.,
PATHOLOGIST, GLASGOW DISTRICT ASYLUM, WOODILEE, LENZIE, N. .

THE interest in these cases lies in the fact that distinct gross lesions were found in the brain on post-mortem examination.

In the first case, that of an epileptic imbecile, aged 17 years, there was a history of fits since childhood. The brain showed two small sclerotic areas, each about one inch square. These areas stood out as pale, hard portions of the normal convolutions. They were limited to the cortex and were present, one on the internal aspect of the left paracentral lobule and the other at the anterior end of the right middle frontal convolution. The pia mater was readily removed from the cortex generally, also from these areas; here, however, the surface had a dimpled appearance. The condition seems to be that of hypertrophic nodular gliosis or tuberose sclerosis. Sections from these sclerosed areas under the microscope showed a dense felting of glial fibres (Fig. 1) with stunted pyramidal cells and

FIG. 1.

Photomicrograph (taken near the surface) of section through nodule, showing marked sub-pial felting.

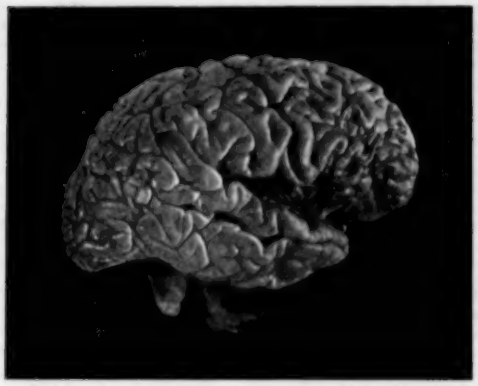
some scattered hyperplastic cells. A fuller account of this case will shortly be published. The consideration of the history of the case and the fact that the sclerosed areas are situated in relation to the tertiary sulci would seem to be in favour of the view that the condition is a congenital

[2] A Manual of Surgical Treatment, vol. vii., 1903, p. 436.

abnormality, occurring at the time of formation of the tertiary sulci.

The other case was that of an epileptic imbecile, aged 20 years. The history of the case is of some interest. The patient seems to have been a fairly intelligent child up to the age of eight and a half years. The first thing that was noticed was a loss of consciousness at times for some seconds and an accompanying change of colour. This continued for some months before he had a fit. Since then the fits had been more and more frequent and his mental state had been more blunted. The last note but one in the journal, written

FIG. 2.

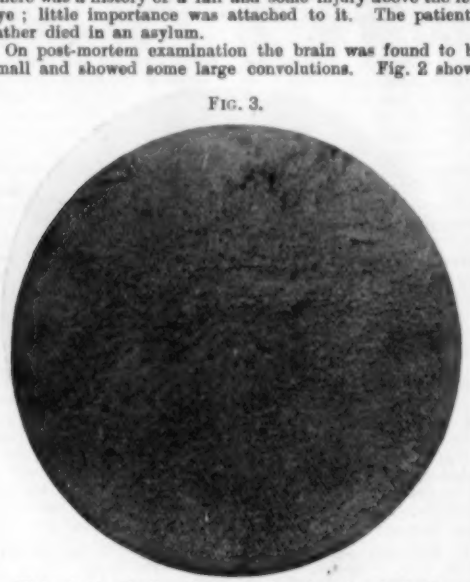


Reproduction of a photograph of the right cerebral hemisphere, showing cyst with microgyry and large simple convolutions with button-hole depression.

four days before he died, is as follows: "This boy is becoming very weak. He is scarcely out of the stupor following a fit when he takes another one. He takes very little food and that chiefly milk. His existence is a purely animal one." There was a history of a fall and some injury above the left eye; little importance was attached to it. The patient's father died in an asylum.

On post-mortem examination the brain was found to be small and showed some large convolutions. Fig. 2 shows

FIG. 3.



Photomicrograph of section through region of cyst, showing loss of brain substance with neuroglial increase.

well the large simple convolutions so frequently found in such cases of idiocy and imbecility. There are also to be seen two well-marked incomplete sulci. These are short and shallow and have a button-hole appearance. They are situated one in the ascending parietal region and the other in the supra-marginal region. Both frontal lobes were small, especially the right. On the right side the inferior frontal convolution was markedly diminished. In its posterior third there was a small cyst, whilst anterior to this and radiating from it on to the orbital surface were small, thin gyri. Fig. 3 shows a section through the region of the cyst. The loss of brain substance and its replacement by glial fibres are well seen.

The condition in both cases was, no doubt, congenital and sufficient, together with the inherited mental instability, to cause the epileptic attacks and subsequent imbecility.

Lenzie, N.B.

THE DIFFICULTIES AND DANGERS OF THE MASTOID OPERATION, THE VICISSITUDES OF CONVALESCENCE, AND THE ULTIMATE RESULT TO THE PATIENT.[1]

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I ALWAYS esteem it a high honour to be asked to address an audience of my fellow practitioners and especially is it so on this occasion, when I am called upon to speak to the members of my profession in this great city which has long been known as a home of famous surgeons. When a few days ago I received a pressing invitation from my friend Mr. Hugh E. Jones to be present to-night I thought that it would be most courteous to you if I jotted down the few words that I have to say on the subject. But in the first place it is my pleasing duty to congratulate Mr. Jones on his admirable paper. I expected from my knowledge of Mr. Jones that I should enjoy listening to his paper and certainly I have in no way been disappointed. What is the nature of the operation the difficulties and dangers of which we are invited to discuss this evening? It is an operation for the removal of disease from the temporal bone in order to put an end to chronic suppuration. Total ablation of all disease is essential when operating for caries or necrosis wherever situated. This was clearly recognised by Celsus who nearly 2000 years ago wrote: "If the discolouration extends right through the bone it must be excised and all disease must be extirpated. If there is sound bone beneath it suffices to remove that which is diseased. It is just the same whether the skull, the breast bone, or a rib be affected with caries, cauterisation is useless, excision is imperative." It is on the Celsian principle that the surgeon must act now.

Though in the treatment of bone disease the indications to be fulfilled do not vary with the particular bone affected, it is self-evident that the technical difficulty of carrying them out must vary greatly according to the anatomical relations of the diseased area. In the operation we are considering the technical difficulty is, perhaps, at a maximum. The disease which it is our duty to remove completely is situated in close anatomical relationship to several important structures which must be left intact if the best results are to be obtained and which it is seldom necessary to injure in order to remove the disease completely. The operation, though varying in difficulty in different cases, is always arduous and is not one to be intrusted to those who have made no serious effort to acquire an accurate anatomical and pathological knowledge of the field of action. That the execution of an operation is difficult is no reason why it should be shirked or scamped.

Dangers.—It may be said without hesitation that when chronic suppuration is present in the temporal bone the dangers of leaving it untreated are far greater than the dangers attending the operation for its removal. A notable railway disaster was due to a railway train having been treated like a cart, stones having been placed behind the wheels of the rear carriage to restrain the train from running down an incline when the engine was detached. No one would class such an occurrence among the ordinary risks

[1] Remarks made in the course of a discussion initiated by Mr. Hugh E. Jones at the Liverpool Medical Institution on March 30th, 1905.

of railway travelling and of the various accidents that have been known to occur in connexion with the mastoid operation some have been clearly due to want of skill and care. Operative accidents arising from defective anatomical knowledge, the use of improper instruments and defective illumination of the field, and infections from want of surgical cleanliness should not be mentioned among the ordinary risks of the operation. Körner contributes some capital reflections which are germane to this part of the subject. He says: "The operation must be classed among those involving much difficulty and responsibility. We can readily understand that such ear specialists who have had no adequate surgical training or have been so long in special practice that they have lost touch with general knowledge hesitate to venture upon this newly opened field. The reason for this is the strikingly rapid development of the surgical side of otology. This hesitation would not have been deemed a reproach to the pure specialists if certain of them had not, as has unfortunately happened, made a virtue out of their incapacity and condemned the operation as a mischievous departure. It is equally intelligible that certain prominent surgeons, lacking the needful otological knowledge, have been constrained to retreat from this field after meeting with various disasters. Those who desire to learn the method would do well to go to school with an experienced teacher; personal observation and actual personal work under experienced guidance will greatly facilitate the comprehension of a method which, even from the best descriptions, is difficult to grasp. Only a few are in a position to acquire unaided the training necessary to enable them to avoid repeating those accidents and faults which none who have participated in the elaboration of the method have been spared. But difficult as the operation is there is no justification for throwing around it a cloak of mystery as if only the elect were ever called upon to perform it."

Mr. Jones referred to fatigue on the part of the surgeon as a cause of mishaps during the operation but this ought not so to be. It is only the work of the amateur that suffers in quality from that tired state to which all men are liable. A well-known writer says: "The amateur that stands at a lathe can knock off when he likes: if his fingers get tired he rests, he takes a cigarette; he sits down for a bit; he goes on again when he feels like going on again." The master craftsman in surgery in the presence of a lethal disease "must go on, he cannot knock off. He learns very early the lesson that he must not get tired, or if he does get tired he must work on all the same."

The anatomical variations in the structure of the mastoid, in the position of the sinus and the bulb, and in the relation of the middle fossa to the antrum are now well known and the surgeon should be prepared for them. The operative accidents which have so long erroneously been regarded as bugbears of the operation are: (1) injury to the dura mater over the middle fossa or over the sinus; and (2) injury to the facial nerve or the horizontal semicircular canal. These are not bugbears to the properly equipped surgeon any more than the vagus nerve is to the surgeon who has to ligate the carotid artery.

1. *In cases of forward-lying sinus or low-lying middle fossa* it is not possible, or even desirable, to attempt to remove all disease without exposing the dura mater over these structures. Mere exposure of the dura mater over the sinus or the middle fossa is not a matter of any great moment. The danger of an operation outside the dura mater is small; indeed, under modern conditions of operation practically *nil*. No hesitation need therefore be felt in exposing the dura mater to any extent that may be necessary for complete removal of the disease. If the dura mater be wounded a risk of intradural infection is added; this, however, should not occur. It is, I may interpolate, the risk of intradural infection that leads the surgeon to plug and not to ligature a venous sinus which has to be blocked.

2. *Facial nerve and horizontal semicircular canal.*—All surgeons who have given any thought to the subject are agreed that there is no difficulty in removing the bridge over the neck of the antrum without injury to the tuberosity in which lie the facial nerve and the horizontal semicircular canal. I think the beginner is more likely to injure the horizontal canal than the facial nerve as it lies superficial and posterior. It must not be supposed that this is a trivial accident as the labyrinth may be infected thereby and moreover such an injury may give rise to tinnitus and vertigo, and, lastly, may spoil the chance of recovery of hearing. The facial nerve runs practically vertically downwards from its final bend and, as Mr. Jones has so well pointed out, everything that lies external to the highest point of the floor of the meatus may be safely removed. This is practically the whole mastoid process. Even in operations involving the petrous bone the facial nerve can usually be avoided, but I would not hesitate to sacrifice it rather than allow suppuration to continue in the petrous, especially as anastomosis with the hypoglossal nerve now affords a means of remedying the resulting deformity. Further, it is quite conceivable that in cases of dehiscence of the tympanum, congenital or pathological, the instrument employed to remove diseased cellulæ tubariæ or tympanicæ might injure the exposed jugular bulb or the carotid artery.

The chief danger attending the operation is, not that one or other of the operative accidents that I have mentioned may occur, but that disease which should have been completely removed may be in part left behind. The extent of the disease, and consequently of the operation, cannot be determined beforehand and the risk is much increased when the operator, having found that the disease has already extended into the petrous bone, does not proceed to follow it up. Some years ago in a case of my own healing failed at the back of the inner wall of the antrum. A year later, the patient meanwhile having suffered from constant headache and general malaise, I operated again, removed the petrous disease, followed a diseased tract through the dura mater, and opened a small cerebellar abscess, which was perhaps present at the first operation. The patient is now quite well. The petrous bone now occupies somewhat the position which the mastoid occupied 20 or 30 years ago. In the older atlases some unexplored lands are marked *hic sunt leones*. Few dare to explore a surgical *terra incognita*, but the danger lies not in removing disease from the petrous but in leaving it there. Obviously the disease must be followed to its utmost limits; this means removal of bone, in some cases behind the tuberosity in which are lodged the facial nerve and the horizontal semicircular canal, and in others in front of the tuberosity where lies the cochlea. It is of prime importance to recognise the fact that suppurative disease is much more dangerous in the petrous than in the mastoid. Necessary and desirable as it is to do a complete mastoid operation it is yet more so to do a complete petro-mastoid operation in cases which call for it.

Vicissitudes of convalescence are—(1) temporary paresis of the facial nerve. Facial palsy sometimes occurs two or three days after the operation. The facial canal is often dehiscent or eroded by caries, and blood may thus easily extravasate into it. In most cases the palsy clears up entirely in a few weeks with or without electrical treatment. It is a long time since I have observed this accident, though years ago it was common enough. I fancy most operators could tell a similar story. (2) Delayed healing of the bone cavity and persistence of discharge. This is usually due to incomplete removal of disease or to failure to carry out the grafting operation. For myself I never undertake to heal a wound of so large a superficial area in the mastoid or elsewhere without grafting. The grafting method greatly hastens healing, but it heals the wound in an exactly similar way as if grafting had not been done—namely, by growth of epithelium. Those who take exception to grafting on the ground that it throws a veil over the fenestræ must forget the practical experience of the method in general surgery and the knowledge we possess of the intimate nature of the process of healing. This is the same both with and without grafting, but in the one case healing occupies a month, in the other several months. Again a healed bone wound prevents any chance of reinfection and a grafted mastoid operation cavity insures a convalescence free from pain.

I have never known an intracranial complication as a result of the mastoid operation but I have known the mastoid operation only to have been done when the patient was really suffering from an intracranial complication. Before limiting intervention to the mastoid operation we must be satisfied that the symptoms are such as can be explained by mastoid disease alone. It is useless to limit operation to the removal of the appendix when the patient has already a subphrenic abscess and it is equally futile merely to perform a mastoid operation when the patient has already an intracranial complication. As symptoms which could not be due to mastoid disease alone and which may indicate the simplest form of intracranial complication I may mention drowsiness and slow pulse. The following is a rare example of the cure of an intracranial complication by the mastoid operation alone.

A patient, the brother of a medical man, whom I went some distance from London to see, had been ill for a week with slight fever and headache. For three days he had had a slow pulse and was very drowsy. Chronic otorrhœa had been present since childhood. The complete mastoid operation was performed; the tegmen was entirely destroyed and pus was lying against the dura mater of the middle fossa which was crimson in colour. The intracranial complication was meningitis serosa and the symptoms—drowsiness and slow pulse—disappeared in three days. I will not labour the reasons for this diagnosis. Suffice it to add that in several similar cases lumbar puncture has confirmed the diagnosis. In this case it was clear before operation that chronic disease of the temporal bone alone could not explain the symptoms and that some other condition would be found. One case will suffice as an illustration of the fact that the cerebro-spinal fluid is increased when a local acute inflammation of the dura mater occurs. Recently I saw with Mr. A. E. Cumberbatch a boy, aged 12 years, who had been acutely ill for eight days following an attack of influenza. We found the sigmoid sinus for one and a half inches gangrenous and in appearance like a piece of wet brown paper. On tapping the lumbar theca the fluid spurted out of the cannula under considerable pressure, two ounces being collected.

Dr. W. B. Warrington referred to the cases of chronic mastoid disease which are associated with optic neuritis. On this subject I have elsewhere remarked: "It has been shown that optic neuritis, of intracranial origin, is due to an extension of inflammation to the sheaths of the optic nerves from inflamed pia mater; and that in these cases, therefore, optic neuritis is pathognomonic of basal meningitis. Basal meningitis may be present which is not visible to the naked eye after death, yet which had nevertheless produced optic neuritis. Thus it is that some cases of chronic otorrhœa are complicated by optic neuritis. The question then arises whether there be any other complication—latent brain abscess, for example—besides the basal meningitis? I have observed several cases of chronic otorrhœa and optic neuritis. The optic neuritis is slight and may last for several months without impairing sight. It subsides when the local disease, from which it arises, is efficiently removed. There is occasional headache. In one case occasional vomiting occurred; but in this the patient, a girl aged 17, who for a time refused operation, had continuous slight headache, was feeble, and sallow of countenance; and the symptoms gave rise to the suspicion that a latent brain abscess was present. Optic neuritis may, of course, occur also in cases of chronic otorrhœa complicated by mastoid suppuration, or subdural abscess; and is an indication for immediate operation." In the case referred to above the optic neuritis subsided after mastoid operation but two years after I last saw her she died with, I am told, head symptoms.

In very intense inflammation of the petro-mastoid certain symptoms may arise indicative of involvement of the internal ear or even of the brain and we must distinguish these cases from those in which an internal ear or cerebral lesion has gone beyond the stage in which resolution is possible. Thus some degree of aphasia may be present in left-sided intense otitis, and, as I have elsewhere recorded, extreme vertigo, a rolling gait, and lateral nystagmus may all be due to acute otitis media; the hyperæmia around the intense inflammation in the tympanum probably affects the vestibular termination of the auditory nerve and possibly also the meninges in the posterior and middle fossæ. The following is an illustrative case.

The patient was a man, aged 29 years. He was seen a fortnight after an attack of influenza. During this fortnight he had suffered from pain in the right ear, extreme vertigo, frequent sickness, and severe frontal and occipital headache. On examination the right meatus was greatly swollen and there was a red blush behind the pinna and also in front of the meatus. There was marked nystagmus, especially on looking towards the left, the eyes were suffused and the optic discs congested, the pain in the ear and head was severe, and the giddiness induced a rolling gait, which made it impossible for him to cross the room without assistance. The left knee-jerk was absent. One hour after free incision of the meatus and membrana tympani a drachm of pus escaped into the mouth and all the symptoms disappeared; up to the time of the operation there had been no external otorrhœa. The escape of pus by way of the Eustachian tube is probably explained by the obstruction of the meatus.

Ultimate result of the mastoid operation.—(1) To the bone affection; and (2) to the hearing. Permanent recovery from the bone affection may be confidently looked for when the radical operation has been efficiently performed except in cases of malignant disease and of tubercle. Even in malignant disease great relief is given and a long respite from recurrence may be obtained. In many tuberculous cases, as in tubercle of other bones, the cure is complete and permanent but in a certain proportion, possibly 10 per cent., recurrence takes place. The disease, as a rule, reappears in the tegmen and in the cells posterior to the antrum which may have been incompletely removed. I am therefore in the habit of completely removing the tegmen in any case of doubt at the primary operation. A patient, aged 40 years, who had caught phthisis from his wife, since deceased, suffered from left mastoid disease. The medical report stated that the disease in the lung was quiescent. At the operation extensive bone disease was found. Next day the temperature was 102° F. and for four weeks he had fever, night sweats, and bloody sputum. He was sent to the country at the end of ten days. No grafting operation could be done. The dressing was very painful but was carried out regularly and in five months the wound healed. The patient had then gained 2 stones in weight and no adventitious sounds could be heard in the lungs. He expressed himself as being better than he had ever been before.

Marasmus in ill-fed infants is a serious complication. Any operation on such infants may determine the occurrence of marantic thrombosis. The most usual site of marantic thrombosis is the superior longitudinal sinus.

Glycosuria in middle life is not a bar to a necessary operation. Some years ago I operated on a woman suffering from profuse otorrhœa of long standing. She had both glycosuria and albuminuria, but made an entirely satisfactory recovery. The anæsthetic used was ether and oxygen. Last year I heard that she had neither sugar nor albumin in the urine, a result which brings the case into line with some cases of gangrene of the foot in which glycosuria and albuminuria disappear after successful amputation. In the rare instances in which, apart from tuberculosis, the operation has failed to arrest the suppuration, the persistence of discharge may arise from infection of the cellulæ tubariæ and the cellulæ tympanicæ. Scarcely sufficient importance has been attached to the removal of these cells when infected, and of completely exposing the floor of the tympanum by taking away the annulus tympanicus inferior.

As to the result to hearing it must be remembered that the operation is not undertaken for the relief of deafness but for the cure of chronic suppuration in the temporal bone which if left is a constant menace not only to the hearing power but to life. Experience has shown that in a considerable proportion of cases the operation not only cures the suppuration but preserves and improves the hearing. The main factor determining the hearing power after the operation is the condition of the parts around the fenestræ. In cases operated on early and in those in which the chief disease is in the mastoid, the tympanum only serving as a conduit for the escape of pus, it is often possible to preserve the mucous membrane of the inner wall of the tympanum and then the hearing power will remain good. When long-continued suppuration has destroyed the tympanic mucous membrane and eroded the bone round the fenestræ it is obvious that the hearing power cannot be expected to recover to the same degree.

Patients always wish to know whether they will hear better or worse after the operation than before. This question cannot ever be answered with certainty. Some observers have given statistics on the subject; thus Heine says that in cases where the labyrinth was intact before operation hearing was improved in 50 per cent. of the cases, not altered in 20 per cent., and worse in 30 per cent. In cases in which some degree of labyrinthine deafness was already present before operation the hearing power was unaltered in about 46 per cent., improved in about 39 per cent., and became worse in about 15 per cent. Grunert's statistics on the effect on the hearing power of the removal of the ossicles show similar results. 50 per cent. were improved, 33 per cent. remained the same, and 17 per cent. were worse. In 20 consecutive cases of my own, all of whom were adults and all had had suppuration since childhood, the hearing improved in every case, in some almost to normal. I think this experience is not exceptional; other operators probably have the same results.

Selection of cases for operation.—I have no longer any

doubt that all cases of chronic purulent discharge from the ear should be treated by the complete operation, though I am quite aware that in some cases the disease has been rendered latent by removal of ossicles alone or even by prolonged systematic dressing through the meatus. No one pottes with a chronic empyema because some few acute cases recover with a single aspiration. It must be either war or peace. The lethal complications that we meet with are not seldom the outcome of the stammering mind of Mr. Ready-to-halt. The armed neutrality which promises operation if the need arises was, and is, the orthodox plan and has much to say for itself; but as Carlyle remarks, "The two internecine plans collapsing into one, that is the clearly fatal method." The great majority, if not all, of the chronic cases have commenced as an acute disease and it is an important practical question, how long may they be regarded as remaining so? That is after what interval should the complete operation and not the so-called operation for acute disease be performed. Many cases in which the operation for acute disease has been performed subsequently require the complete operation and I am now of opinion that in any case requiring operation after six weeks of discharge the surer treatment is the complete operation. The operation for acute disease is an incomplete procedure and therefore uncertain in its results; the bridge is not divided, the abscess is incised only at its two extremities, the narrow neck of the antrum provides only imperfect drainage, and is very liable to become blocked by granulations. In cases of ingravescent appendicitis no surgeon would dare to call himself a late operator, but no one who has attended meetings at which the treatment of temporal bone disease has been debated can fail to be struck with the fact that the orators seem to plume themselves on avoiding operation. Is this a logical position to take up in treating a disease which is also ingravescent and which has perhaps a history of 20 years' standing, which may be tuberculous, and which in any case is liable to infect other parts of the body? The best results both to the hearing and to the health of the patient in suppurative temporal bone disease are obtained by early and complete operation. No surgeon would leave a sinus leading to diseased bone in the tibia for 20 years, or even for one, however cleverly he might be able to irrigate it or tickle it with antiseptic powders and cotton-wool. In mastoid disease, as in Bunyan's allegory, the Messrs. "Hopeful," who are persuaded to stray along the easiest going of By-path Meadow, will not escape the crab-tree cudgel in the dungeons of Giant Despair.

Harley-street, W.

A CASE OF MITRAL INCOMPETENCY AND ASCITES TREATED WITH APOCYNUM CANNABINUM.

BY A. J. B. DUPREY, M.R.C.S. ENG., L.R.C.P. LOND.

IT may be to some advantage, I think, to give a brief note on the treatment of valvular heart disease, especially when such complications as an enlarged liver and ascites arise, with apocynum cannabinum. After having read both the annotation in THE LANCET of Sept. 3rd, 1904 (p. 734) and Dr. T. J. Walker's letter two weeks later,[1] and having then a suitable case in the Vieux Fort District Hospital, St. Lucia, I at once determined to use the drug. I had but recently received a supply of medicines, among which I noticed the tincture of apocynum cannabinum, generously supplied by Dr. Stanley Branch, the officer in charge of the Castries Government drug store. The patient was then in a very bad condition and really was hopeless, the only temporary relief being paracentesis which I performed regularly every month or six weeks, so rapidly did the fluid accumulate in the abdominal cavity. He was a black man, about 49 years of age, and he was admitted to the Vieux Fort District Hospital on March 14th, 1904, suffering from heart disease and ascites. On admission he was found to be in a most distressing condition of dyspnœa and other uncomfortable symptoms of pressure from an enormously distended abdomen. He was at once tapped and a little over 20 pints of ascitic fluid were withdrawn. After a couple of ounces of brandy and a little rest he was then able to give some account of himself. I found that he had freshly arrived in St. Lucia from Cayenne, where he had been ill for several months. He said that the medical man in Cayenne had tapped him 30 times and true enough his lower abdomen was indurated with the number of cicatrices from the punctures. The cardiac dulness extended from the upper margin of the third rib to the sixth interspace and laterally from the right edge of the sternum to two fingers' breadth outside the left nipple. The cardiac beat was seen and felt in the fifth and sixth spaces and there was a wavy thrill to be felt at the apex synchronous with the systolic rhythm. On auscultation there was at the apex a systolic murmur increasing in intensity from without inwards and heard all over the cardiac area. At the base the second sound at the pulmonary cartilage was sharply accentuated. His pulse was irregular in force and volume. His liver was enlarged, reaching to two fingers' breadth below the margins of the rib, and its dulness extended over nearly the whole of the epigastric region. It was smooth to the feel and exhibited no tenderness. After paracentesis the abdominal wall was so lax that the liver could be grasped between the fingers and thumb, so that its enlarged size could be well appreciated. The spleen was not appreciably enlarged. His urine was scanty, acid, and contained no albumin but deposited on standing a thick sediment of phosphates. His skin was wrinkled and dry, exhibiting a fine scaly desquamation such as one sees in the convalescent stage of measles. The appetite was bad; he remained on a low diet from the day of his admission until Sept. 23rd, when it was changed to a middle one. His bowels were kept open by purgatives. He remained in this hopeless condition, taking for medicine digitalis and iron without any change whatever, until I saw the letter of Dr. Walker, when I commenced to add to his prescription one minim of the tincture of apocynum cannabinum. This was on Oct. 12th. I am not quite sure as to where the tincture came from but it was supplied to me by Dr. Branch of his own free will, as I had not requisitioned for it. The patient was tapped on Oct. 5th, when I drew from him three gallons of ascitic fluid and it was not found necessary to tap him again until his readmission in May of the following year. From Oct. 12th the drug was increased at each repetition by one minim to the ounce until the 27th when it was increased by two minims. On the 31st he was taking ten minims of the drug three times daily, which I found exceeded the maximum dose by his developing symptoms of irritation. The urine voided in the 24 hours was carefully noted from the 14th and it will be seen that from a very small quantity of concentrated urine, barely half a pint, the daily excretion rose to several pints during the 24 hours. Thus on Oct. 14th he passed 10 ounces; on the 15th, 12 ounces; on the 16th, 16 ounces; on the 17th, three pints; on the 18th, three and a half pints; on the 19th, three and a half pints; on the 20th, five pints; on the 22nd, five pints; on the 23rd, five pints; on the 25th, six pints; on the 26th, six pints; on the 27th and 28th, six pints; and on the 29th and 30th, seven pints. On Nov. 1st, the morning after he had commenced to take ten mimims thrice daily, the amount of urine decreased to two pints and was highly albuminous and showed tube casts. He lost his appetite, complained of nausea and headache, and from a feeling of cheerfulness he again collapsed into a despondent state. There was violent epigastric pulsation. Between the 6th and the 9th he only passed one pint of urine. Fortunately I at once recognised these ill symptoms to be due to an overdose of apocynum cannabinum and reduced the dose to six minims. After a few days he regained his appetite and former cheerfulness and the quantity of urine rose on the 10th to two pints and subsequently on the 18th to three and a half pints. He was discharged at his own request in the latter part of February, 1905, though not cured of his heart disease yet feeling much better than he ever expected. He carried a bottle of medicine with him which, unfortunately, he never thought of repeating, consequently he was readmitted early in May with an enormously distended abdomen from which I removed a large quantity of fluid just before I left St. Lucia. Thus it will be seen that whereas tapping was urgently needed every month or six weeks he was able to improve so much on apocynum cannabinum as not to require the operation for nearly six months.

There are one or two points which require special mention

[1] THE LANCET, Sept. 17th, 1904, p. 859.

observable during the administration of apocynum cannabinum. In the first place, it must be carefully remembered that its physiological action on the kidneys is a very powerful one, as may be observed was the case above when the medicinal dose was exceeded. The urine at once showed evidence of acute congestion of the kidneys and there was a marked diminution in the quantity of urine voided which at the same time became highly albuminous. Had the dose—viz., ten minims three times daily—been persisted in there might have even occurred complete suppression. That the drug is actively excreted by the skin is, I think, evident from the remarkable result which it had on the above case. There was a general cutaneous hyperæmia not visible on a black skin but the itching and desquamation seemed to have pointed that way. After the man had been taking the drug for some weeks the desquamation ceased and the skin assumed a moist and more natural gloss. The itching had disappeared and as this latter was a source of irritation and sleeplessness at night, which I tried in vain to combat with warm baths, he from being restless and irritable was able to enjoy his night's rest. I attribute this happy state to the apocynum cannabinum, which I hope will meet with equal success in other hands.

Mayaro, Trinidad, B.W.I.

THE INFLUENCE OF NASAL OBSTRUCTION ON THE FORM OF THE FACE.

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THERE appears to be much difference in opinion as to the relation in cause and effect between a highly arched narrow palate and nasal obstruction when these conditions are found associated. While some would account adenoids responsible for all the variations from normal which the jaw may exhibit, others would regard these variations as etiological factors in the production of adenoids. Some of the former explain the method of production in one way, some in another. There are also believers in heredity and racial character as of primary importance in the production of the highly arched and V-shaped palate. They look upon any nasal stenosis that may exist as complementary to the form of palate present and deny its influence as a causative agent altogether.

It is well known that obstruction to nasal respiration leads to the development of a characteristic facial form and expression which has come to be called the "adenoids facies" and is described thus: "The face is long, the point of the nose pinched, the lower jaw hangs down, the mouth is open, there is often lateral narrowing of the alveolar arch, high palate, and prominence of the upper incisor teeth which tend to approach one another posteriorly, the upper lip projects away from the teeth, the inner canthus of the eyes is drawn downwards, the eyebrows raised, while the obliteration of the natural folds of the face gives to the patient a stupid, vacant, semi-idiotic expression." In addition there are often seen depression and widening of the bridge of the nose which is frequently crossed by a prominent vein.

In the relation of adenoids to the adenoid facies De Champeaux recognises three divisions—namely, the facies without the presence of adenoids, adenoids without the facies, and the co-existence of adenoids with the facies. In the first the mouth is open, the palatal arch is pointed, and the teeth are badly arranged. The patient snores at night, the tonsils are not enlarged, and respiration is buccal and cannot be carried out through the nose. The case presenting these characteristics is obviously one of nasal obstruction other than that due to adenoids in the naso-pharynx. The omission here of all facial deformity except that affecting the anterior portion of the maxillary bones is very noticeable. A careful perusal of the description of the adenoid facies will enable the reader to divide the deformity into that of the maxillary bones, that of the mandible, and that of the bridge of the nose, the remaining signs being consequences of the bone alteration. Obstruction to nasal respiration is almost universally agreed to be the cause of the deformity but it is not generally recognised that so much of it as affects the maxilla is due to anterior nasal obstruction, that the lower jaw is not really, but only apparently, affected by nasal stenosis, and that the deformity at the bridge of the nose alone is consequent upon posterior nasal obstruction.

Mayo Collier has established beyond doubt the following facts and in the application of the principle has found the cause of deflections of the nasal septum. "If one nostril is blocked up, from whatever cause, the air in that nostril is rarefied by the inspiratory act ..... and the walls of that box are subjected to a pressure exactly in proportion to the amount of rarefaction" and "no *plus* pressure exists during expiration" to modify or to obliterate the effects produced by the occurrence of negative pressure during inspiration. He computes the difference of pressure to amount usually to between two and three pounds on each square inch.

Grossheintz believes that the existence of a highly arched and V-shaped palate depends upon the type of skull, whether dolichocephalic or not. He finds that with a high narrow alveolar arch is usually associated a general narrowing of the upper face and that narrow nasal passages and narrow orbits belong to the same type of skull formation, and he concludes that a high narrow alveolar arch depends upon the congenital racial characteristics of the skull and not upon the later extra-uterine influence of nasal stenosis. The constant association of the long narrow skull formation with the high narrow palate suggests that both may be due to the influence of the same cause—namely, a proportionate degree of anterior nasal stenosis, for it is to be remembered that the nasal fossæ are in internal atmospheric communication with the maxillary, frontal, ethmoid, petrosal, and mastoid sinuses. As a consequence of this the air pressure at any moment existing in the nasal fossæ is the equivalent of that existing in the sinuses already mentioned, provided that no obstruction to their intercommunication is present.

Given a bilateral anterior nasal obstruction, complete or of partial degree, buccal respiration being unimpeded, with negative pressure in the nasal fossæ behind the obstruction as would occur at each inspiration, negative pressure is present to the same degree in all those fossæ of the skull connected with the nose and pharynx up to the position of the floor of the nasal fossæ—i.e., above the soft palate. The long-continued effect of the consequential external atmospheric pressure upon young and soft bones would be to deform them in a definite direction—namely, in the direction of a narrowing of the face and upper jaw and dolichocephaly. It is therefore not surprising that a high narrow palate is found associated with a dolichocephalic skull. To those who suggest that this configuration of the jaw is dependent upon the presence of post-nasal lymphoid hypertrophy it is sufficient to adduce the negative evidence of Fraenkel's careful measurements. He came to the conclusion that it occurs no more frequently in those who have adenoids than in those who have not had them.

A large number of writers hold the view that adenoids, when causing a posterior obstruction prohibiting the nasal chambers from carrying out their proper function, prevent the perfect progress of the process of development in the jaw. While some attribute this to the abeyance of natural function and the want of proper blood-supply, others attribute it to the absence of the mechanical factor upon which the naso-pharynx is dependent for its growth—namely, the pressure of air upon its walls. The assumption is that the process of development is hindered. Were this so the part should exhibit a deficiency in growth. In the vast majority of cases there is, however, no *deficiency* of growth. It is rather a deformity—growth in the abnormal direction. The suggestion that there normally exists a positive pressure upon the walls of the naso-pharynx from inside is not supported by reference to any physical law and it is difficult to imagine how this could be so, seeing that the whole force of air in motion is expended in the direction in which it is moving—namely, towards the potential vacuum in the lungs, not at right angles to this upon the lateral walls or floor of the nasal fossæ. This, indeed, might occur to some extent if the posterior orifice of the nasal chamber were smaller than the anterior or if the act of inspiration were accomplished by propulsion of air, but we know that the reverse is the case.

Without entering into a lengthy discussion of the various opinions which have been held from time to time it will suffice to say that variation in intranasal air pressure is

admitted as a potent enough cause when acting upon mouldable bones, such as are found in the lymphatic, rickety, or other diatheses accompanied by malnutrition. It is, however, not sufficiently understood that there is, and must be, a difference in the result produced when the obstruction is situated anteriorly and when it is situated in the naso-pharynx. Nasal obstruction considered in relation to its effect upon the formation of the face should be separated into that which is anteriorly situated and which obstructs the entrance of air into the nasal fossæ and their connected cavities and that which is wholly posterior. For mechanical reasons their effects must differ, for whilst an anterior obstruction at each inspiration would be productive of negative air pressure within the nasal chambers and a corresponding increase of pressure on the outside of the face, a posterior obstruction—that is, one situated in the naso-pharynx—cannot exert any influence to diminish the air pressure in the nasal, maxillary, and associated sinuses. On the contrary, this pressure, in common with the general air pressure outside the naso-pharynx (and if buccal respiration be also impeded outside the lungs), must become excessive and its effect would be to depress the bridge of the nose and to widen it.

In the most pronounced type of obstructing adenoids—namely, that occurring in infants and very young children—the most noticeable feature is the flattened and widened bridge of the nose. It is easy to imagine how this is brought about, for in such cases even buccal respiration is impeded by the presence of enlarged tonsils, and at each inspiration a positive air pressure is brought to bear upon the outside of the face as well as outside the chest and the whole face is flattened in an antero-posterior direction. The naso-pharynx beyond the obstruction is the centre towards which the pressure is directed; the thinnest and softest places are those upon which the greatest effect is produced. The nasal fossæ are in this case not affected except in the direction of the wall which intervenes between the atmosphere and the obstruction. The brunt of pressure must fall upon the growth itself and upon so much of the ethmoid bone as lies above the obstruction. This being driven backwards will lead to flattening of the bridge of the nose.

FIG. 1.

Appearance of patient with mouth closed as far as possible.

When anterior obstruction exists concomitantly with posterior the effects would be expected to vary in the ratio of the degree of one to the other, the anterior obstruction first exerting its influence and only so much of the posterior obstruction coming into play as is in excess of the former. The following case, which illustrates a deformity which may on the foregoing grounds be attributed to anterior nasal obstruction, is interesting and rare in ordinary medical practice though well known to dentists. Fig. 1 is reproduced from a photograph. The lips are voluntarily retracted, while the jaws are as closely applied as possible. My note, taken at the time of first seeing the patient, is as follows: "The bicuspids on both sides fall short of apposition, the incisors in front are half an inch apart, the molars come well together; the palate is very highly arched. In the nose the inferior turbinated bodies are tightly pressed against the nasal septum on both sides. The inferior meatal air-way on the right side is completely occluded and on the left it is very nearly so by mucous hypertrophy of the turbinals and general narrowing. There are no adenoids." A casual inspection of the case would lead to the conclusion that the inability to close the jaws was due to shortening of the ramus of the lower jaw with increased obliquity of the angle and this was the opinion hastily expressed by one or two medical friends to whom I showed the boy. *The lower jaw seemed to hang down.* I carefully measured the angle of the jaw in 20 boys of the same age and stature. In the case under consideration the angle was 120°. In the others it varied between 120° and 132°, the average being 126°. I also satisfied myself that there was no shortening of the ramus. Measuring with dividers the extreme limits in a median line between condyle and angle the patient had a length of 66 millimetres, whilst another boy with also an angle of 120° had a length of 57 millimetres.

FIG. 2.

Model of jaw showing fullest possible extent of apposition of the teeth.

My friend Mr. A. Macfarlane very kindly made a model of the jaw, a photograph of which is reproduced (Fig. 2). The nature of the deformity became at once strikingly apparent. In the lower jaw the alveolar margin is regular and in other respects its formation is normal, whilst in the upper jaw the alveolar process deviates upwards at an angle opposite the first bicuspid tooth on each side. It is, however, not quite symmetrical, the deformity being slightly more marked on the right side than on the left, a noteworthy circumstance when taken in conjunction with the degree of nasal occlusion right and left respectively and confirmatory in the human being of Ziem's experiments on young animals. A further comparative measurement of the 20 cases referred to shows that the jaw is considerably narrowed. The distance between the centres of the first bicuspids is 29 millimetres in the model, whilst in the others the same measurement varies between 38 and 43 millimetres, the average being 42 millimetres. The difference is here very marked. In the lower jaw the distance between the first bicuspids is 35 millimetres in the model and in nearly all the other cases also, the variations being slight where all the teeth were present. It was found to be impossible directly to measure the altitude of the

palate in the control cases with any approach to accuracy. In the case under consideration the palate was obviously much higher than in any of the others. The deformity may be described as a high-vaulted, laterally compressed, V-shaped palate. It is, in fact, the type of palate seen with cases of open bite. With it is associated anterior nasal obstruction of a very marked degree.

The jaw also seems to be foreshortened and the anterior part to be undeveloped. In order to decide if this be so I have measured the region of the temporary teeth in this and 20 other models arbitrarily chosen from the collection in the museum of the Royal Dental Hospital through the kindness of Mr. D. Gabell. Measuring with dividers the region of the temporary teeth in the upper jaw from a point at the middle of the back of the central incisor at the alveolar margin to the posterior edge of the second bicuspid of the same side and at the same level the distance was in most cases 27 millimetres. I was careful to exclude models in which any teeth of this region were absent. Examples of such diverse conditions as square arch, open bite, general crowding, irregularities in position not the result of crowding, canines erupting outside the arch, canines erupting inside the arch, a very markedly narrow and V-shaped jaw, normal child's, and normal adult's were measured and I did not find in any case variation of more than a millimetre, which could easily be accounted for by the variation in the size of the teeth and the level of the gum. The same measurement in my model is 26 millimetres, sufficiently near the constant size to negative the conclusion that it is undeveloped antero-posteriorly when the wide margin of fallacy in this measurement is taken into consideration. It is seldom that so severe a deformity as the one now reported is produced. The deformity, though of remarkable degree, is of the same character as that usually seen associated with nasal stenosis and described in the adenoid facies and may be attributed to the same cause acting with greater intensity.

The case illustrates in a remarkable degree the association of the highly arched and narrow jaw with anterior nasal obstruction. There is here no deformity of the lower jaw or flattening of the bridge of the nose and the inner canthus of the eye is not drawn downwards. The deformity is limited to the maxillary bones which are more than ordinarily affected. The nares are markedly obstructed by anterior stenosis; the greater deformity is on the side of the greater obstruction. The conclusion, supported by physical laws, that this variety of deformity is dependent on anterior nasal stenosis seems irresistible, and so much of the adenoid facies as conforms to this type must therefore have for its cause obstruction anteriorly situated in the nose. The importance of recognising this fact is very great when a prognosis has to be given in operations for adenoids undertaken for symptoms of obstruction.

The results of operations for adenoids are not always such as are predicted. Even in the hands of the best and most careful operators a certain proportion show only improvement and some are complete failures. Out of R. H. Crowley's 200 cases undertaken for various reasons so large a number as 25 showed improvement only, while eight showed no improvement at all. Among the reasons given for the continuance of symptoms, hypertrophic rhinitis is mentioned in ten cases. This condition, as is well known, is a common cause of anterior nasal obstruction. If, therefore, it be recognised that a characteristic deformity of the upper jaw is indicative of anterior nasal obstruction, every case of adenoids which presents this feature should suggest the presence of anterior obstruction of probably an easily remediable character and a correct treatment and prognosis can be given. When, on the other hand, there are symptoms of nasal obstruction from adenoids with an adenoid facies in which deformity of the upper jaw has no part, the surgeon may be confident of the immediate beneficial result of operative interference. The "habit of mouth-breathing," after an unsuccessful operation for adenoids, is usually the result of inability, due to constant or "intermittent" anterior nasal obstruction, the evidence of which is stamped upon the face, and the attempt to overcome it is too often an unjustifiable harshness to the child.

Devonshire-street, W.

THE GUILD OF ST. LUKE.—The customary annual service of the guild in St. Paul's Cathedral will be held on Thursday, Oct. 19th, at 7.30 P.M.—The annual meeting and festival service of the Birmingham branch of the guild will be held on Thursday, Oct. 19th. The sermon will be preached in the pro-cathedral by the Rev. Canon Horsley.

SANATORIUMS FOR THE POOR AND THE ERADICATION OF CONSUMPTION.

BY RONALD CAMPBELL MACFIE, M.A., M.B., C.M. ABERD.,

LATELY MEDICAL SUPERINTENDENT, SIDLAW SANATORIUM, BY DUNDEE

INVISIBLY, insidiously, incessantly, the bacillus tuberculosis gathers its annual harvest of a million lives. In Great Britain alone hundreds are daily garnered and the yearly dead would people a considerable city. And though of recent years sanatoriums have sprung up like mushrooms all over the land, yet the therapeutic problem has never been fully and adequately considered. As confession of an evil, as symptom of an awakening, sanatoriums must be heartily welcomed; but the evil, though publicly confessed, has not yet been fairly faced, and though men are awakening they are not yet quite wideawake. The sudden realisation of an evil has tempted the rash improvisation of a remedy and it is time that the whole therapeutic question should be reconsidered "*ab ovo usque ad mala*." Before impulsive and optimistic charity builds more sanatoriums it surely were wise to investigate carefully and thoroughly the utilities and futilities of the sanatorium system. We are fighting a slim and formidable foe; it will not do merely to muddle through the business; we must not waste our ammunition; we must use to best advantage the sinews of war; and we must marshal our facts and court-martial our fictions.

Let us examine the matter. *Are* sanatoriums, as at present conducted, the best offensive and defensive measures against consumption? It is true that they are popular and impressive measures, but are they sane and sound strategy? As one who has been for years in the thick of the battle I have no hesitation in giving my personal opinion that in the warfare against consumption sanatoriums cannot be more than useful auxiliaries and that they are at present not even so much. They may save a few lives; they may educate a few people; they may advertise a great evil; they may indicate a new crusade; but they can never succeed, *per se*, in exterminating the ubiquitous and insidious foe; for consumption is essentially a disease of poverty, and sanatoriums for the poor on their present basis are, and must be, financially extravagant and medically futile. In the land of poverty the Armageddon must be fought and sanatoriums for the poor, as at present conceived, are little better than castles in the air.

Consider the following facts. There are in Great Britain at present about 200,000 poor consumptives and about 1000 sanatorium beds for these. Therefore, about 3000 patients—i.e., about 1 in 70—a year can be treated; and therefore, if all patients treated were cured the death-rate from consumption would be lowered by about 1·4 per cent. As a matter of fact, however, only a small percentage of the patients treated are cured. In *Tuberculosis*—the official organ of the Association for the Prevention of Tuberculosis—the following note appears in the April number, 1904: "We do not believe that in this country we shall ever succeed in getting sanatoria for the working classes filled with early cases. The working man will, as a rule, endeavour to keep at work until the disease has made so much headway that it thoroughly incapacitates him. Those who are managing sanatoria must not at present expect to get many patients who are capable of doing most things for themselves nor anticipate to send out many cured after three or four months' treatment." This is, indeed, a discomfiting and discomforting statement; but, alas, it has only too many corroborations. We read that at Sheffield 39 per cent. of cases admitted were clinically hopeless—that only 57 per cent. appeared to have a chance of being restored to working life and that eventually four (possibly six) of 28 cases were sufficiently cured to be at work four years after discharge. We read that at the Durham Sanatorium at Stanhope 122 out of 168 were advanced cases and that about half of the whole number have died within four years. We read that at Heswell sanatorium "the patients in too many cases only came to the sanatorium when too late to receive such benefit as it was calculated to confer." We find eminent sanatorium authorities stating that "not more than 10 per cent. of sanatorium patients are early cases"; that "however satisfactory the immediate results of the treatment in the

case of the working man the risk of subsequent relapse is very great"; that "most of our patients do not seek hospital relief until they are practically beyond medical aid"; that the average duration of treatment of patients is "insufficient either to cure them or to instruct them in the hygienic rules on which their well-being depends"; and we might multiply such pessimistic opinions. We may therefore rightly and safely assume that only a small proportion of cases treated are cured and if we put the percentage at 15 per cent. I am certain that we shall err on the side of optimism. And accordingly the much vaunted sanatorium crusade which was going to stamp out tuberculosis is found hardly appreciably to affect the death-rate.

As a matter of fact sanatoriums for the poor, as at present conducted in England, are simply a tragical farce. The ill-instructed optimism is farcical: the results must be tragical. On the one hand, enthusiasts predict that sanatoriums will stamp out tuberculosis—and the sanatorium boom goes merrily on; on the other hand, the *facts* are as I have indicated. But it may be objected that the sanatorium system in England is still in its infancy and that its failure is due to administrative deficiencies. Doubtless its failure would be less deplorable if its administration were more perfect, but even perfect administration on present lines will result in only partial efficiency. In Germany the sanatorium experiment has been made on a huge scale under almost ideal administrative conditions and in a most business-like and scientific way, yet even in Germany, as I shall show, sanatoriums for the poor have not proved an unqualified success. If the system be weighed it will be found wanting.

When legislative measures were passed in Germany compelling all those with incomes under £100 a year to insure against sickness, old age, and accident, the insurance companies found the sick pay of consumptives a heavy tax on their resources and considered it a good financial policy to give relief (as the law permitted) in the form of sanatorium treatment, and since 1892 the State and insurance companies have given sanatorium relief on a colossal scale. Every year the insurance companies spend some hundreds of thousands of pounds in the building and subsidising of sanatoriums; and, further, a large number of private societies—notably the Berlin, Brandenburg, and Red Cross Societies—have been founded to assist in the erection of popular sanatoriums. There are now in Germany more than 70 sanatoriums, capable of treating 30,000 persons in the course of a year.

Thus sanatorium treatment is carried out in Germany on a much larger scale than in England, and not only in extent, but in many other respects, the sanatorium movement in Germany compares favourably with the sanatorium movement in England. In Germany compulsory insurance allows of the most careful selection of suitable cases; in England cases are more or less indiscriminately accepted. In Germany sites and climatic conditions have been carefully chosen; in England these have been subordinated to the question of convenience. In Germany the cost of maintenance has averaged about £2 per bed; in England some of the sanatoriums for the poor are conducted on lines of rigid economy. In Germany, accordingly, we have sanatorium treatment carried out under conditions calculated to give the best results possible—conditions that England can probably never provide. Yet what do we find? With German thoroughness the German Imperial Health Office analysed the results of treatment in 6273 cases treated between 1899 and 1900 and showed that in the opinion of the sanatorium physicians 87·7 per cent. were cured or improved. This sounds magnificent; but when we further find that in the opinion of the same physicians only 67·3 per cent. were fully able to work at their former occupation, we begin to understand that "cured" and "improved" are vague terms without precise practical significance. Still, if even 67·3 per cent. of consumptives could be permanently restored to working life the economic value of sanatoriums for the poor would be immense. The question, however, at once arises, Is the restoration to working life permanent or merely temporary? And in order to determine this most important question the German Imperial Health Office investigated the after-history of 2147 persons, with the following most remarkable results. Of each 100 cases dismissed as being wholly or partly *able* to work, only 21 per cent. were able to work four years later; while of each 100 cases dismissed as being wholly or partly *unable* to work, 18·27 were able to work four years later. These figures are most startling; they would seem to prove both the fallibility of prognosis and the futility of treatment. Can prognosis be of much value when 100 cases dismissed as able to work and 100 cases dismissed as unable to work show at the end of four years almost the same number of working survivors? Can treatment be of much value when so many of its supposed failures survive and outwork its supposed successes?

Even accepting the very questionable explanation of the German Imperial Health Office—i.e., that the unexpected stamina of the unsuccessful cases is due to hygienic education at the sanatorium—even accepting this explanation and assuming, further, that none of the cases (whether considered good or bad) would have been able to work at the end of four years without sanatorium treatment but owed their lives and their working capacity to sanatorium treatment, still we cannot consider the result very satisfactory. And the result seems less satisfactory still when we remember that most of the cases were insurance cases and that according to the report of the Imperial Health Office: "Sanatoriums patronised wholly or chiefly by insurance institutions were specially rich in doubtful cases characterised by 'light catarrh of one apex,' 'catarrh of the lungs,' 'apices suspected,' and the like." In the light of such results under such conditions we are forced to the conclusion that 20 per cent. of cures is the highest percentage of cures that sanatoriums on their present basis (unless in Alpine climates) can attain and that in England such a percentage can probably never be reached. In the light of such results, too, it is plain that both the public and the profession have been carried away by a wave of enthusiasm quite unwarrantable, howsoever commendable, and that it is time the whole situation should be calmly reconsidered.

It is true that with sufficient sanatoriums even 20 per cent. of cures might considerably reduce the death-rate from consumption, but, as I have pointed out, it is improbable that English sanatoriums can ever reach such a percentage and even if they could reach it the situation would be economically unsound and financially intolerable unless under the German system of compulsory insurance. Let us consider the cost of a life saved by sanatorium treatment on the assumption that 20 per cent. of cases treated are cured. As shown by the Sandgate Select Committee each efficient sanatorium bed means an annual expenditure of £100. The average sojourn of a patient in a sanatorium may be estimated as four months. Thus the cost of treating each patient would be about £33 and the cost of each life would be about £165 (at present in England each life probably costs double that). This is both greater than necessary (as I shall afterwards point out) and greater than public charity will defray. As I believe that THE LANCET has said, the attempt to combat the ravages of the "tubercle bacillus" among the rank and file of the population by means of State-aided hospitals pursuing the open-air treatment is probably doomed to failure from sheer inability of our national resources to stand the strain thereby thrown upon them. In a word the sanatorium system is not only medically inefficient but also economically extravagant.

What, then, is to be done? Are we to abolish sanatoriums altogether? Not so; but by acknowledging their limitations, by reorganising their methods, and by using them in a subordinate and subsidiary capacity as auxiliaries of more efficient forces, we must make better use of them, and till we have done this we must build no more. Under the present system sanatoriums save only 10 or 20 per cent. of the lives treated, but on another basis 80 or 90 per cent. of lives could be saved at half the present cost and this basis I shall try broadly to outline.

A little practical experience of sanatorium treatment—or even a theoretical acquaintance with sanatorium statistics—will show that a careful and successful selection of cases by sanatorium experts would more than double the economic value of sanatoriums. In an analysis of 1660 cases made by the German Imperial Health Office it was shown that 44 per cent. of early cases were able to work four years after discharge, whereas only 16·7 of more advanced cases were able to work so long. I am not prepared to admit that all the 44 per cent. of survivors owed to sanatorium treatment the prolongation of their working capacity; nevertheless a comparison between this percentage and the percentage (20 per cent. as previously quoted) of surviving workers at the end of four years in a group of only partially selected cases will prove the importance of a most fastidious selection if one is to obtain the best economic results. The difference between 44 per cent. and 20 per cent. shows

beyond doubt the desirability of differentiation and selection of cases. And it may further be mentioned that the Falkenstein and Görbersdorf sanatoriums, which accept unselected cases, claim only 11 per cent. and 13 per cent. of cures.

In a very interesting and instructive paper on the Need and Use of Sanatoria Dr. Arthur C. Latham states: "I see many a patient who with money and care could be restored to health. The supply of beds, however, is so limited that I can do nothing and the man's opportunity slowly goes by." It is a sad and tragic picture, yet I am sure Dr. Latham will agree with me that—limited though the beds may be—many more lives could be saved if the beds were rigidly reserved for "patients who with money and care could be restored to health." At present, as I have shown, the majority of beds for the poor are occupied by patients who will never recover and surely the first thing to be done is to construct machinery to obtain the right cases. It is not more beds we need so much as a wise and proper use of the beds already in existence.

Each town, each centre of population, should have special medical officers (preferably with practical sanatorium experience) to find and to secure suitable cases. At Basle Sanatorium in Davos and at the Sidlaw Sanatorium there is an admission committee which considers the medical superiority of cases. In some places the sanatorium medical officer himself may have time and opportunity to select cases. This is so at Liverpool Sanatorium and the National Sanatorium Association of Canada has established an examining office in Toronto to be visited at regular intervals by its sanatorium physician that he may examine cases recommended by physicians. In most cases, however, it would probably be desirable to have an extramural examining medical officer not only to select but to enlist cases.

However the end is to be achieved, some system of scientific, trustworthy selection is absolutely necessary. The present hapless, happy-go-lucky method of selecting patients must cease and none but suitable and incipient cases must be admitted. As Dr. A. Newsholme recently said, "Early diagnosis is the almost indispensable condition of recovery." Careful, systematic selection then must be the first article in sanatorium reform. But careful systematic selection alone is not sufficient. Even 44 per cent. cannot be considered satisfactory. It is not satisfactory to find that out of 100 early cases treated in sanatoriums 56 per cent. are *hors de combat* in four years.

What is the cause of this tremendous casualty list? Is it not strange that so many of the cases pronounced fit for work should fall out by the way? Was the physician's diagnosis wrong? Was the disease really active which seemed quiescent? I believe that the diagnosis was right and that, under favourable conditions, the disease really underwent arrest but that the strain of unsuitable work and the scathe of injurious circumstances caused a gradual recrudescence. I believe, further, that the extraordinary and disconcerting manner in which, as shown by the statistics I previously quoted, so many cases considered *unfit* outlasted and outworked so many of the cases considered *fit* was due to nothing else than to the fact that the fit cases were sent back to work, while the unfit were probably advised to abstain from exertion. The improved cases killed themselves by going back to ordinary work and to ordinary working conditions, while the unimproved cases were able

> "To husband out life's taper to the close
> And keep the flame from wasting by repose."

Every physician with practical experience of sanatorium treatment knows how a little over-exertion or excitement suffices to raise the temperature of a consumptive and how necessary it is that all details of a consumptive's life should be medically supervised and this is the case not only when the disease is active but even after it is apparently arrested.

Dr. Latham, in his excellent paper on the Need and Use of Sanatoria to which I have referred, asks: "What happens under present conditions? A man with some difficulty is sent to a sanatorium. After a month or two he feels so much better that he wants to go home. ..... He goes home too soon and rapidly becomes worse." And the patient goes home not only too soon, he often goes back to infected rooms, to unhealthy work, to dusty factories and shops. Indeed, how *soon* a patient may safely leave a sanatorium depends quite as much on the environment to which he returns as on his precise pulmonary condition. If a patient return to good conditions and to suitable work he may safely leave a sanatorium much sooner than if he return to bad conditions and unsuitable work. But, as a rule, to treat a poor patient—even an early case—for a few months and then to send him back to the average environment and work of the poorer classes is to waste money and to invite disaster and disappointment. Exceedingly few consumptive patients are fit, after a few months of sanatorium treatment, to stand the wear and tear of ordinary working life and to face the dangers of ordinary working environment; and, regarded in the light of this fact, the figures given by the German Imperial Health Office with reference to the after-history of sanatorium patients are no longer inexplicable and anomalous but natural and illuminating and instructive. It was inevitable that many of the patients sent back to work should break down and it was quite to be expected that a certain number of cases sent back to easier conditions and with a knowledge of how to live should retain or recover working capacity.

Accordingly, it is evident that if sanatoriums are to be efficient it will be necessary not only to perfect a successful system of selection of cases but also to supervise and superintend the after-life of the patient and to provide favourable surroundings and healthy work. Already both conditions of efficiency have begun to be acknowledged and in a few cases have received practical recognition. The Prussian State Railway, which employs 240,000 workmen, all insured against illness, accidents, and old age, has a system almost perfect in both respects. At the very first symptoms of disease the patient is sent to a sanatorium and is kept there for years if necessary, and when he is discharged he is given light and suitable work, according to his capacity. Not only so, but his family is provided for during his compulsory absence and the sanitary condition of his dwelling is insured. The results are wonderfully satisfactory—80 per cent. and 90 per cent. of patients are permanently restored to working capacity. Only a huge and powerful corporation, however, could have funds and facilities for such a perfect and colossal scheme and the problem must be solved in England on other lines.

The selection of patients is a comparatively easy matter and presents few practical difficulties if the work be allotted to competent experienced specialists, with the aid of special dispensaries and hospitals, and with the coöperation of medical officers of health. But provision of healthy surroundings and suitable work is a much more difficult matter. We cannot as a nation afford, like the Prussian State Railway, to keep patients for years in a sanatorium; the expense would be quite prohibitive; yet, on the other hand, if we send back patients to hard work, unhealthy surroundings, and insufficient food, it is certain that 60 or 80 per cent. of them will relapse; and this relapse implies an enormous economic waste. What then is to be done? Is there no remedy for such a state of matters? Is there no possibility of providing cured patients with such work and such environment as will render the arrest of the disease permanent?

There seems to me only one solution, only one way to medical economic efficiency in this respect, and that is, to establish industrial colonies in connexion with sanatoriums. It must be recognised that a consumptive is to be considered, *pro tem.*, as an economic cripple; he cannot play a full part in the battle of life; he must be guarded and protected and specially provided for quite as much as must an epileptic; and even as colonies have been established for epileptics so colonies must be established for consumptives. The idea is not new though its economic necessity and advantages have never been fully and sufficiently urged. Dr. C. C. Chidell, lately superintendent of London Sanatorium, recently contributed to *Tuberculosis* an interesting paper on Industrial Colonies for Consumptives, but he seems to consider them rather as a corollary and development of sanatoriums—"a philanthropic experiment"—than as a necessary economic adjunct. Dr. F. Rufenacht Walters, too, who advocates model villages under the supervision of medical men acquainted both with sanatorium treatment and with public health, advocates them rather as highly desirable than as absolutely essential. "There is no reason," he says, "why model sanitary colonies should not be established where cured consumptives could lead a healthy outdoor life, more or less under medical guidance and with the provision of specially airy dwellings and workshops." And others have written on similar lines. I contend, however, that industrial colonies are not only highly desirable but absolutely imperative if sanatoriums

for the poor are to be of real economic philanthropic value. I contend that without colonies and without a satisfactory system of selection sanatoriums for the poor must be largely tragical farces.

The practicability of colonies has already been proved: already small colonies have been started. There exists in France a society called "L'Œuvre des Enfants Tuberculeux" founded for the purpose of treating gratuitously the tuberculous children of poor patients. "This society (which has a council of 12 and is under the scientific direction of a medical committee of 20 members) now has a dispensary in Paris, two hospitals or sanatoria in the country, and several small agricultural colonies for the training of those who have been cured in the hospitals, thus providing an unbroken series of steps whereby a tuberculous child may be cured and afterwards fitted for a healthy open-air occupation." (I quote from Dr. Walters's standard work on sanatoriums.) Each of the colonies is in charge of a medical man.

The Montefiore Home for Consumptives has a country colony where suitable patients, able to do light work, are sent and already the Home is supplied with milk and eggs from this source. Dr. Sajous about 13 years ago started a company in order to build a model coöperative village for consumptives at New Florence. At the Victoria Hospital in Edinburgh, too, there is the nucleus of a tuberculous colony. Dr. R. W. Philip, who is doing magnificent work in the campaign against tuberculosis, writes: "At the present time the major portion of the non-medical staff of the hospital, including garden workers, engineer, carpenter, bath attendants, maid-servants, and other workers, is constituted by tuberculous patients who have been restored to health at the hospital but whose chances of permanent cure would have been prejudiced by an immediate return to their previous employment." At the Muskoka Free Sanatorium patients are required to do some regular daily work when the medical superintendent considers it advisable.

All these, however, are merely small, tentative, pioneer essays and if industrial colonies are to solve the question of the treatment of the tuberculous poor they must be organised on a much bolder and larger scale. To sketch in detail a satisfactory sanatorium colony scheme would require much space; but I should like here briefly to outline what I consider should be its leading features and functions. I would suggest that each sanatorium of 40 beds should have a complementary colony of 40 chalets, each with four rooms. The sanatorium patients, carefully selected by experts, should receive three months' sanatorium treatment. During these three months of treatment they should be taught the essential elements of open-air treatment and should be built up into robust physical condition. During this time, too, any patients found to be unpromising might be rejected; while a few might be educated in the employments which they might intend to follow at the colony. At the end of three months—in some cases sooner—the patients, well fed, and with the disease arrested, should be drafted to the open-air colony, where suitable work, gradually increasing in severity, should be allotted to each by a physician trained in sanatorium treatment. Married patients might be permitted to bring their families provided these were willing to work for the general weal. There should be a common kitchen and offices, and patients or their friends should act as cooks and kitchenmaids in turn. Each patient should, of course, look after his or her own room. A certain amount of agricultural and horticultural work should be done and patients should follow easy occupations, such as poultry-farming, bee-keeping, mushroom-growing, basket-binding, bookbinding, brass-work, millinery, wood-carving, leather-work, &c. A market for much of the surplus produce and products might be found in hospitals and in the conjoint sanatorium. (Much expense might be saved by keeping goats instead of cows, as is already done at Las Vegas Sanatorium in New Mexico.) A medical officer, a matron to supervise the housekeeping, and a nurse for emergencies would be sufficient permanent staff; and overseers—*Obmänner*, as at Dr. Weicker's Krankenheim—might be chosen from the patients to supervise different departments. The colony should, so far as possible, be coöperative and self-supporting, but probably it could not entirely support itself and would require a subsidy of 7*s.* or 8*s.* a bed per week; its objects and intention must avowedly be not to defray the *whole* expenses of administration and food but to diminish them so far as to make the treatment of poor consumptives financially practicable so long as medically requisite. The management of such a colony would require both ability and special experience, and salaries should be offered sufficient to induce able and experienced men to give their whole time and energy to the work.

At first sight the financial aspect of such conjoint enterprise may seem formidable and prohibitive, but a careful examination will show that it is as economical as it is desirable. We may estimate roughly that land and chalets for 240 patients would cost £40,000, for land could be obtained cheaply in many counties and no doubt many sanatoriums would willingly give their surplus acreage for such agricultural and industrial purposes. The cost of each life accordingly would be as follows:—

	£	s.	d.
12 weeks in a sanatorium at £2 a week	24	0	0
72 weeks in a colony at 8*s.* a week	28	16	0
Interest on capital expenditure (say)	10	0	0
Administrative expenses (say)	8	0	0
Insurance, depreciation, &c. (say)	4	4	0
Inevitable failures	8	0	0
Total cost of a life	£83	0	0

As we saw previously, the cost of each life under the present sanatorium system is about £166. Thus by spending about £40,000 on each 40 beds already existing, we might more than quadruple the number of lives saved and save them at half the present cost. "The whole crusade," as Mr. Malcolm A. Morris has remarked, "is one of economics," and the economic value of such a scheme as I have outlined would be immense. Each life thus cheaply saved would be a source of national wealth, for by its labour it would much more than repay the cost of treatment.

An indirect advantage of such a scheme would be that many cured patients, even though fit to return to city life, would elect to remain in the country and this would in time do something to counteract the constant pernicious flow of population from country to town. As Dr. Chidell has pointed out, "We may confidently expect that some colonists would settle permanently on the land, and pass from the status of paying patients to that of paid hands." "Such permanent settlement, too," as he has further pointed out, "would be the greatest possible boon also to patients' families," whether they may be predisposed to consumption or be merely exposed to infection. And it may be added that it would prevent the demoralisation which, as all sanatorium medical officers know, is sometimes produced by a prolonged sojourn at a sanatorium.

It cannot be too strongly urged that any such conjoint scheme would require competent and expert administration. It would be necessary to recruit with energy, to select with discrimination, and to supervise with judgment. No consideration of expense must be permitted to interfere with efficiency. Money will be forthcoming as soon as the expenditure is shown to be of real economic value and in a matter of this nature penny-wise is pound-foolish. The annual loss to the nation from tuberculosis at the present time must amount to £30,000,000 or £40,000,000, and no wise philanthropy or prudent legislation can afford to permit such serious financial leakage. As Mr. Rushton Parker points out, "A fourth of all deaths during the wage-earning age (15 to 55) is due to consumption, leaving widows and children dependent on relief from Poor-law, friendly societies, charity organisations, &c., and the cost of this must be enormous." Merely to relieve pauperism due to consumption £1,000,000 annually are spent and it surely were wiser to spend this sum in curing the patient than in relieving the pauper. There is no doubt the money for a sanatorium colony will be found as soon as the public are convinced that poor consumptives can be cured thereby at a reasonable and remunerative cost.

But this cry, this fashionable inconsiderate parrot-cry, of "More sanatoriums! More sanatoriums!" must cease. There are sanatoriums enough and in the face of the most well-meaning enthusiasm I would insist that the majority of them under present conditions are only tragic farces. Is it not a farce to accept cases almost indiscriminately, partially to cure them, and then to send them back to the very conditions under which they contracted the disease—to insufficient food, to impure air, to unhealthy unsuitable occupations, sometimes to dusty cobwebby rooms with walls and floors smeared with sputum? Is not that a tragic farce? Not to build more sanatoriums but to develop and to multiply the usefulness of the already built must be our first endeavour. Until we have secured a workable and satisfactory system of

selection and until we have made due provision for patients after leaving sanatoriums it is sheer folly to spend money on additional sanatoriums. So long as 80 per cent. of the beds of English sanatoriums are filled with incurable cases, while early curable cases die for lack of a bed, so long as 80 per cent. or 90 per cent. of improved cases relapse, the obligation to reform and to reorganise the existing sanatoriums must be more urgent and instant than the obligation to build more. Surely it is better to double the efficiency of the sanatorium system than to double the number of sanatoriums. In a word, the crying evil is not the lack of sanatoriums but the inefficiency of those already in existence; and I am confident that the economic and medical value of sanatoriums for the poor would be more than doubled if the beds could be filled with incipient cases and if these could be drafted away, after a time, to an industrial and agricultural colony.

I notice that the National Committee for Establishing Sanatoriums for Workers proposes to erect a sanatorium of 200 beds near London and to let the beds to various societies at about 25*s.* a week. The committee also, I am glad to see, proposes to found a complemental colony with the aim and object of giving the patients healthy and suitable work in order to prevent relapses after leaving. This is so far good, but it is a thousand pities that the committee does not contemplate fewer beds and a larger conjoint colony. By a well-balanced, well-proportioned conjoint scheme the National Committee might save many more lives and might win the honour of being the pioneer in a philanthropic work of enormous national importance. If a conjoint scheme cannot be successfully organised, far better use the sanatoriums for purposes of isolation or—as Dr. Newsholme has done at Brighton—for purposes of education than persist in the pretence of curing patients, most of whom in the circumstances can never be cured. In any case—and I wish specially to urge this point—sanatoriums, even in conjunction with industrial colonies, can play, as I previously said, only a subsidiary part in the campaign against consumption, and it is therefore a foolish policy to concentrate upon them too much philanthropic attention.

At the International Congress of Medicine at Madrid Professor Maragliano affirmed, "It is not by means of sanatoriums that we shall be able to diminish the number of the tuberculous and defend humanity from this scourge. Popular sanatoriums, institutions eminently charitable, for the tuberculous poor, though capable of contributing powerfully to the cure of this malady, are not able to play the decisive rôle in the social prophylaxis of tuberculosis. Considered under this aspect the sanatoriums have the effect of the sanitary cordons and quarantines which were formerly thought capable of stopping the diffusion of epidemics. Science and experience have shown that the best obstacle to oppose to the invasion of infectious maladies consists in creating in the countries concerned good hygienic conditions so as to deprive morbid germs of the medium suitable for their multiplication." And another eminent authority, Dr. H. Timbrell Bulstrode, affirmed in his Milroy lectures that "It is in the inculcation of general principles of health, which include more air, more light, more cleanliness, and generally better housing, that we are pursuing the surest and the best-tried road towards success." Sanatoriums will do something, sanatoriums with complemental colonies will do more, but they cannot be such effective weapons as sanitation, education, and direct disinfectant and prophylactic measures. We must carry the war into the enemy's country. By hygienic measures and social reforms we must improve the health and thus the resistance of the poor, and at the same time diminish the risk of infection.

During the years 1840 and 1895, before sanatoriums could have had any influence, the death-rate from consumption in England and Wales fell about 50 per cent. and the decrease was particularly rapid and pronounced during the decade 1840–50, "when," in the words of Dr. A. Ransome, "serious attention began to be given to sanitary reforms and especially to land drainage." And during all the years of decreasing death-rate from consumption the influential factor undoubtedly was sanitation, improved houses, better food, *not* sanatoriums. In Germany the death-rate from consumption has similarly fallen and it is instructive to note that the fall has been less rapid since the building of sanatoriums. The reduction amounted to an annual average of 0·99 per 10,000 inhabitants between the years 1886 and 1893; whereas between the years 1894 and 1900—years of sanatorium activity—the reduction was an average of only 0·55 per 10,000. Everywhere, indeed, a decline in the death-rate due to consumption has followed improved hygiene and better social conditions.

It has been shown in a most interesting way by Dr. Reincke of Hamburg and Dr. Körösi of Budapest that there exists an exact causal relationship between wealth and tuberculosis and that as income increases tuberculous disease diminishes. Thus, Dr. Reincke has shown that the death-rate per 10,000 among those with an income of from 900 to 1200 marks is 31·6; while in those with an income of from 10,000 to 25,000 marks the death-rate is only 4·9. Sir Hugh R. Beevor, too, has shown "a coincidence and a remarkable agreement between the phthisis-rate, the fall in the price of corn, the fall in the number of paupers, and the rise in the average wage." It is unnecessary to multiply testimonies and illustrations; but it may be worth while to quote the remarkable instance of Havana, where, during the American occupation, an active and energetic campaign was conducted against consumption by means of sanitation, disinfection, dispensaries, special supervision of consumptives, &c., to such good effect that the death-rate fell in a few years from 2794 to 900 and the medical officer of health dares to prophesy a speedy complete eradication of phthisis.

To sum up—sanatoriums under the present conditions involve a terrible waste of lives and money and, although with conjoint colonies and competent administration they might be made most useful weapons against consumption, yet they must not be permitted to divert philanthropic energy from more profitable and proven measures. Consumption will be most speedily and economically abolished, not by means of sanatoriums but by hygienic improvements—better food, better housing, more open spaces, &c., and by direct measures against the disease, such as the dispensaries of Dr. Brouardel and Dr. Philip, and the educative sanatoriums of Dr. Newsholme, along with notification, isolation, disinfection, and house-to-house visitation. An effort to make a few foul, infectious houses clean and airy and sunny will do more to eradicate consumption than can be wrought by many costly, colossal sanatoriums.

Dundee.

A NOTE ON THE OCCURRENCE OF A SPIRILLUM IN THE BLOOD OF PATIENTS SUFFERING FROM SECONDARY SYPHILIS.

BY SURGEON G. M. O. RICHARDS, R.N.

AND

SURGEON LAWRENCE HUNT, R.N.

HAVING read the accounts of the discovery by Schaudinn and Hoffman of a spirillum in the hard sore and other lesions of syphilis and of Roux and Metchnikoff who found the same organism in the chimpanzee inoculated with the secretion from a syphilitic chancre, we investigated the same organism in cases under our care.

Our procedure to begin with was to examine films from every case of venereal sore and we found in films made from scraping some of the sores the organism described by Schaudinn and Hoffman. It appeared to occur in three forms, presumably involution forms of the same organism, differing only in thickness, length, and the number of spirals; one form being thick and straight or slightly curved, a second of the same thickness as the first but with spirals, and the third one exceedingly thin, distinctly spiral, with a large number of turns and very long. The first two varieties appeared to exist in the secretion and the superficial part of the sore, whilst the third variety only occurred in the deep scrapings, and in a film from such scrapings the organism could be seen lying amongst the blood cells.

As the secondary stage of syphilis appears clinically to be a stage when the infection is blood borne, and drawing an analogy from the rose spots of typhoid fever where bacilli have been found, we took a case of secondary syphilis with a rash of a few days' duration, pricked a typical spot, and made the blood films, taking the greatest care to avoid contamination by cleaning the skin with soap and then spirit and using specially clean slides. The films were then stained for five minutes by Giemsa's stain diluted 1 in 3 with

distilled water, and on examination were found to contain a spirillum exactly like the fine form found in the sore. Other cases were taken and we have now observed the same organism in three patients. Films were taken from spots on the abdomen, chest, and arm. The spirilla do not occur in large numbers and often require a long search and in some of the films only one has been seen. In one patient the organism was seen in a blood film taken on each of ten successive days and in the three cases in which the organism was found in the blood it had previously been seen in all forms in the primary lesion.

From our observations the presence of spirochætæ in the venereal sore appears to be diagnostic of syphilis, and up to the present all cases in which the organism has been found have developed a secondary rash. Later we hope to publish statistics of a large number of cases.

Royal Naval Barracks, Portsmouth.

SECONDARY EFFECTS UPON THE SYSTEM WHICH MAY BE PRODUCED BY CHRONIC ENLARGEMENT OF THE TONSILS.

BY H. BELLAMY GARDNER, M.R.C.S. ENG., L.R.C.P. LOND.

THE study and practice of anæsthetic administration direct the attention of the anæsthetist primarily to the condition of the respiratory system and teach him to observe intimately those effects which are produced by even the slightest interference with efficient oxidation of the blood. In this way the induction of anæsthesia becomes instinctively to the anæsthetist the application of a test of the integrity of the patient's respiratory apparatus and of the vitality of the respiratory centre in the medulla. Secondarily the tone of the vaso-motor mechanism and strength of the circulation are elicited, whilst during successive stages symptoms which may be due to particular nervous states, derangements, or diseases become evident to him through his constant experience of the behaviour of the human organism under this test.

I do not intend in the present article to enter further into the interesting points which these facts disclose than is necessary to draw attention to the probability of the view that chronic obstruction to respiration, even if it be purely mechanical and situated in the upper air passages, may produce a certain degree of those effects which are commonly attributed only to obstructive lung and heart diseases. Increased systemic intravenous pressure is obviously a contributing factor in the causation of varicose veins of the legs and is so classified in the surgical text-books. It is further admitted that this increased intravenous pressure may be produced by mitral valvular incompetence, chronic bronchitis, emphysema, or the pressure of a growth or aneurysm within the chest. The effects upon the circulation which we are considering when produced by such causes are identical—namely, a retardation of the venous circulation with consequent engorgement of the systemic veins and limitation of the oxidation processes in the lungs—a condition which might be generally described as one degree of chronic asphyxia.

Now, for the sake of illustration, let us take the case of a man suffering from chronic emphysema and varicose veins when the latter require operation. If a closed method of anæsthetic administration be adopted in such a case by means of ether with a bag inhaler extremely laboured breathing and cyanosis with much secretion of mucus will ensue, a condition which might generally be described as exhibiting two degrees of asphyxia. This condition is the result of (1) the patient's chronic state of one degree of asphyxia due to emphysema; and (2) moderate air limitation by re-breathing at intervals into a closed bag. This is, of course, a bad method of anæsthetising such subjects but is given to illustrate the argument.

During ten years' work at one of the London general hospitals I have found that there is a particular type of youth who requires treatment for varicose veins and in whom no obvious cause as given by the text-books can be found for their appearance in the patient's history, occupation, or physique. The type mentioned is usually a male about 20 years of age, thick-set, of middle height, and somewhat powerful build; he is florid in complexion and full-throated. Many of these have been desirous of entering the army but have been refused solely on account of varix, being deemed otherwise to be healthy lads. Now if ether be administered to such a patient by means of a closed method or bag inhaler, even when the mouth has been propped open, extremely laboured breathing, cyanosis, and excessive secretion of mucus will ensue, a condition I have described above as presenting two degrees of asphyxia. These results do not follow the administration of ether by this method to a patient without some existing asphyxial factor within the system. If the throat be examined in this particular type of youth considerable chronic enlargement of both tonsils or of one tonsil will be found which partly blocks the air way and in many cases reduces it to about half its proper size. My belief is that the chronic obstruction to free respiration and oxidation of the blood from which these patients suffer produces a certain degree of chronic engorgement throughout the systemic veins and that this factor—that is, the enlarged tonsils—contributes to the gradual dilatation of the veins in the legs for which they come under treatment. I need hardly mention that a more open method and some other anæsthetic are more suitable for such cases in order to secure tranquil and non-asphyxial anæsthesia.

In my experience there are also large numbers of cases in childhood and youth which present themselves for the treatment of hernia and at the same time labour under this form of obstructed respiration. It is evident that the chief exciting cause of hernia must be increase in the intra-abdominal pressure, for it is within the experience of every practitioner of medicine that hernia has made its first appearance after whooping-cough and bronchitis. Powerful contractions of the abdominal wall are observed during cough and laboured breathing—and the latter is obvious when a child with enlarged tonsils falls asleep in the supine position. In fact, so conscious do these patients become of their discomfort that it will be observed that they prefer to lie prone upon their faces in bed with the forehead upon the pillow or head to one side, and the mouth open in order that the tonsils should hang forward and free the air way. When such a patient is anæsthetised even with chloroform and no asphyxial factor is present excepting the tonsils laboured breathing, jerky movements of the abdominal wall, and occasional tendency to coughing appear, unless the mouth be opened and the lower jaw held forward to remove the tonsils from contact with the pharynx. I have frequently administered anæsthetics for the radical cure of hernia where enlargement of the tonsils has been considerable and have as constantly observed the same patients asleep in the hospital ward during their convalescence a week or more afterwards, snoring deeply, with exaggerated jerky abdominal movements going on, proving to me only too clearly how the hernia had been forced down by the continuous action of obstructed respiration.

I am well aware that the predisposing causes may be considered more potent factors in both these diseases; all I desire is that, considering the simplicity of the operation for excising the tonsils, this exciting cause of increased intravenous and intra-abdominal pressure should be recognised and removed both as a preventive measure and also before radical treatment for its secondary effects is carried out.

Mansfield-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF ACUTE POISONING BY EUCALYPTUS OIL.

BY HENRY S. TAYLOR, M.D. ABERD.

As cases of poisoning by eucalyptus oil are very uncommon and are not even mentioned in the editions I have by me of either "Taylor's Medical Jurisprudence" by Stevenson, or "Murrell on Poisons," a record of a case which I attended some time ago may be of interest, perhaps more especially so as eucalyptus oil is regarded by the general public

and, I think, also to a great extent by the medical profession, as a more or less innocuous drug.

In the early part of 1902 I was hurriedly called one night to a patient who was said to be dying. On arrival at the house I found the patient, a strong and perfectly healthy man, about 25 years of age, in the following condition. He was at an open window, gasping for breath, his head hanging over the window-sill; his face was intensely congested and then changed to a pale livid hue for an interval, after which there was a return to a deep purple. His ideas were confused, he made wandering and inconsequent remarks, and when I drew him from the open window he made persistent, though badly coördinated, efforts to return to it. He had a sense of impending suffocation, which only hanging his head out of the open window somewhat mitigated. His general movements were extremely restless, the extremities were cold and clammy, and the pulse was very slow; convulsive movements of both hands and feet occurred every now and then; his fingers were tightly clenched on his hands. He then became semi-comatose and sank into a state of stupor, from which I had very great difficulty in rousing him, and as soon as I desisted from my efforts the stupor returned, his head sank forward, and he fell into the comatose condition again. His general condition now became alarming and all my efforts to rouse him failed.

The history of the attack was as follows. He went home to supper in perfect health and made an ordinary meal with his usual appetite, carried on conversation, and generally was in his usual excellent health and condition. He was a very strict teetotaler and never took any alcohol. After supper he remarked that he had "a bit of a cold" and that he would take a "good dose of eucalyptus" on going to bed. He accordingly, by his own account, swallowed a large teaspoonful of the oil, plain, and within a few minutes of his doing so he complained of a severe smarting pain down the œsophageal tract and in the gastric region, followed by the symptoms which I have detailed. His breath had a powerful odour of eucalyptus and his pupils were inclined to be contracted but only to a small extent. I gave him first stimulants, as he was very collapsed, and then a good dose of ipecacuanha and sulphate of zinc; after this he vomited freely the contents of his stomach which filled the room with the odour of the eucalyptus oil mixed with them. Soon after vomiting the symptoms began to abate, his ideas from being confused became more collected and he was able to give me a clear account of what had happened, the semi-comatose state disappeared, and he gradually returned to his ordinary health and condition. The next morning he was quite well and went about his usual business.

The oil which he had taken he had purchased in the town and it was possibly not very pure or of a very good quality. I asked him whether he had often taken the oil; he said, "Oh, yes, whenever I have a cold I take about 15 drops." It had never affected him when so taken, but he remembered that on one occasion, when he had taken half a teaspoonful at a dose, he became very giddy and a little confused; these symptoms, however, did not last long or go any further; he identified the sensations he had then as being the same as the initial symptoms of the attack I have described before he became confused and lost consciousness and there is no doubt that his condition was due to an overdose of the drug.

It would be interesting if any of the readers of THE LANCET could furnish particulars of any cases which they may have met with of untoward symptoms following on taking a large dose of this oil.

Pickaburg, Orange River Colony, South Africa.

TWO CASES OF POISONING FROM THE APPLICATION OF ATROPINE TO THE EYES.

BY PERCY B. SPURGIN, L.R.C.P. LOND., M.R.C.S. ENG.

THE two following cases are of interest owing to their severity and the unusual means of poisoning; also as showing the marked idiosyncrasy which the children displayed with respect to the action of the drug.

The first patient was an excitable girl, aged ten years, who had been attending an eye hospital for cataract and had been given for instillation "guttæ atropinæ" containing four grains of atropine in the ounce. One day in July, 1901, I was sent for urgently to see the child and found her covered with a diffuse rash closely resembling that of scarlet fever. Her temperature was 102·7° F. and her pulse-rate was 140. Her fauces and tonsils were much inflamed; she had a typical strawberry tongue and frontal headache but there was no vomiting. Inquiry elicited the fact that an hour previously the drops had been instilled, the patient then appearing to be quite well. An aperient powder and a saline mixture were prescribed. In the evening all the symptoms had considerably abated. Next morning the rash had disappeared completely, the throat was normal, the tongue was clean, the pulse-rate was 96, there was no headache, and the child had slept well. In two days she had recovered completely.

The second patient was a girl, aged three and a half years, who had been attending the same hospital for strabismus and had been having instillations of "guttæ atropinæ" containing two grains of atropine in the ounce. Sent for one morning I found that the child had vomited and was rather collapsed. Her temperature was 101·3° F. and her pulse-rate was 116. Her tongue was furred, her throat was slightly inflamed, and her chest and back and the upper part of her thighs were covered with a scarlatiniform rash. The same treatment as in the previous case was adopted with the addition of half a drachm of brandy in half an ounce of water, administered immediately, and a hot-water bottle applied to the feet. On the same evening she was better and on the next morning she was feeling quite well and all signs had disappeared.

In neither case was there subsequent desquamation. The diagnosis in both cases was poisoning by the "guttæ atropinæ." Careful inquiry elicited the fact that in neither case did the "guttæ" drop or trickle into the mouth; the rapidity of absorption and the speedy appearance of symptoms—in each case under one and a quarter hours—were remarkable.

Wimbledon, S.W.

A CASE OF (?) TUBERCULOUS MENINGITIS TREATED WITH IODOFORM OINTMENT.

BY HENRY C. WILSON, L.R.C.P. IREL., L.F.P.S. GLASG.

ON July 16th, 1905, I was called to see a boy of delicate aspect, aged six years. He was feverish, his temperature being 102° F., his pulse-rate 120, and he had been vomiting throughout the day. I gathered from the mother that during the previous week he had complained of headache, had cried if spoken to, was irritable, and not of his usual disposition. On the following morning his condition was much the same and he continued to vomit. In the evening, when I saw him again, he was in a semi-comatose condition. On the 18th the characteristics of meningitis were well developed. Retraction of the head, Kernig's sign, *tache cérébrale*, and twitchings of muscles were present. The pupils were dilated, the face was alternately flushed and pallid, and the boy could be roused only with difficulty. An ice-bag was kept applied to the scalp. A saline mixture containing iodide and bromide of potassium and calomel in a small dose were prescribed. On the 19th he remained much the same but was weaker and more comatose. His temperature was 101° and his pulse-rate was 80. The muscles of his left leg were rigid and his condition altogether was most unfavourable. In the evening an ointment consisting of 15 grains of iodoform in an ounce of vaseline was rubbed into the scalp and the back of the neck and instructions were given that this was to be done thoroughly every eight hours. On the 20th there was no alteration in the patient's condition. His temperature was 100° and his pulse-rate was 74. On the 21st he took notice of his surroundings to some extent. Iced milk and soda water were given and retained. On the 22nd he was much improved; he had taken more notice and had spoken. On the 23rd the improvement was continued and from this time he progressed slowly, gaining in strength and weight; his general condition is also returning to what it was previously to the illness. The use of the ointment was continued for about two weeks.

Two years ago the patient's brother, eight years of age (whom in appearance the parents inform me he greatly resembles), was attacked with precisely the same symptoms and died after an illness of six or seven days; his case was diagnosed by a consultant and the medical man in attendance as tuberculous meningitis. I understand that there is on the

mother's side a tendency to pulmonary tuberculosis. The history and symptoms would, I think, point to the meningitis being very probably tuberculous and until the inunction of the iodoform ointment the prognosis was apparently hopeless.

Catford, S.E.

A Mirror of HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. GEORGE'S HOSPITAL.

A CASE OF ACUTE NON-RHEUMATIC ARTHRITIS TREATED WITH ANTISTREPTOCOCCIC SERUM; RAPID AMELIORATION.

(Under the care of Dr. H. D. ROLLESTON.)

FOR the notes of the case we are indebted to Dr. H. Robinson, house physician.

On Oct. 7th, 1904, a female, aged 51 years, was admitted to St. George's Hospital with the following history. About one month before admission the patient's knees became swollen and painful; this soon subsided but one week later the wrists and the joints of the fingers were similarly affected. Shortly afterwards the knees again swelled and also the ankles and great toe-joints. There was sweating at night and the appetite, never very hearty, was even poorer than usual. Since childhood she had had fleeting "rheumatic" pains in the shoulders but never any attack of acute rheumatism. A few years ago the right elbow had been swollen and stiff throughout the winter. She had never had chorea nor was there any family history of this or of acute rheumatism. One sister suffered from chronic "rheumatism." The patient had ceased to menstruate about three years. There was no history of gonorrhœa. On admission the temperature was 102·6° F. No source of possible septic infection was found either in the mouth or elsewhere. There were no physical signs of disease in the lungs or in the abdominal viscera. The heart's impulse was slightly displaced outwards and its character, with that of the cardiac sounds, suggested slight dilatation, but there was no evidence of valvular lesion. In the extremities the hands showed ulnar deflection at the wrists. Most of the inter-phalangeal and metacarpo-phalangeal joints were enlarged and red; they were painful and stiff but did not grate when moved. The wrist-joints were markedly swollen but the elbows and shoulders were unaffected. The metatarso-phalangeal joint of the right great toe was enlarged and grated when moved. Both ankle-joints were swollen but not painful and there was slight effusion in both knees, greater in the right than in the left. The movement of these joints was attended by a sensation of crackling. No abnormality of the nervous system was discovered. There was no appreciable muscular wasting. The urine deposited phosphates on heating but was acid to litmus. During the patient's stay in hospital it frequently contained indican and on one or two occasions chlorides were absent without apparent cause. Early in January, 1905, albumin was present for a few days.

After admission the patient was treated with a liberal diet and iodide of iron medicinally. She was kept in bed and required constant aperients whilst under treatment; the bowels were kept regularly opened throughout. The temperature remained persistently elevated, fluctuating between 100° and 102°; it was noticed that the evening reading was almost always lower than that of the morning and a four-hourly chart showed that the maximum occurred at 2 A.M. and the minimum at 2 P.M. The pulse-rate in the first week varied from 90 to 120 beats per minute. On the fifth day after admission the temperature, pulse-rate, and articular swelling remained as before and a course of sodium salicylate was tried. One and a half drachms of this drug were given in an alkaline mixture during the 24 hours but without influencing the signs in any way. On the following day iron was resumed, this time as the tincture of the perchloride in 15-minim doses. The joint swellings now began to subside and Dr. H. R. D. Spitta, who was asked to withdraw and to cultivate some of the fluid from the wrists, found the distension of those joints insufficient to warrant the use of an exploring syringe. But the pain and pyrexia continued and another salicylate course was ordered, three drachms being given in 24 hours. On the following day the same amount of natural sodium salicylate was administered but no benefit accrued. The application of an icebag to the affected joints gave temporary relief only. After a fortnight's treatment the results obtained seemed to be limited to the disappearance of the effusions and the lowering of the pulse-rate to from 80 to 100, instead of from 90 to 120. Aspirin was being given for insomnia but produced little effect on the joints. A further salicylate course of three drachms a day and a further trial of iron as Griffith's mixture during the second fortnight were accompanied by some diminution of pain, but this was only slight and the pyrexia continued unabated. Arthritic atrophy began to show itself at this time. On Nov. 8th ten cubic centimetres of polyvalent antistreptococcic serum prepared at the Pasteur Institute were injected; within 36 hours the temperature fell to 99°, a point only four times reached in the preceding five weeks; after this the highest reading recorded was 99·8° and the lowest 99° until the 14th, when ten cubic centimetres of the polyvalent serum prepared at the Lister Institute were injected. A marked reaction followed this (*vide* chart),

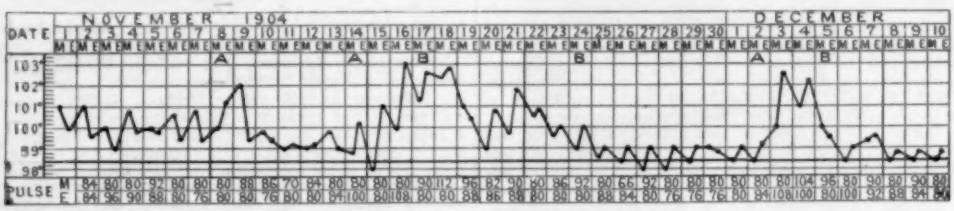


Chart showing course of temperature between Nov. 1st and Dec. 10th. A, 10 cubic centimetres of antistreptococcic serum injected. B, Rash.

the temperature rising to 103° on the 16th and falling thence gradually to normal. An urticarial rash over most of the large joints, which was ascribed to the first dose of serum, appeared on the 17th, and a copious morbilliform eruption on the 24th, plentiful on the trunk and sparser on the limbs, was similarly explained by the second administration. A prophylactic course of calcium chloride failed to prevent the second eruption. From Nov. 25th to Dec. 2nd the chart showed a maximum of 99° and a minimum of 98°. By this time the joints were greatly improved and pain was absent, though much stiffness remained. On the latter date another ten cubic centimetres of serum prepared at the Lister Institute were injected, followed as before by a febrile reaction (up to 102·6°), by a decline to normal (on Dec. 6th), and by an urticarial eruption on the trunk and lower extremities (on Dec. 7th). After this the temperature remained normal and the inverse type which had been the rule up to the first serum injection was never again encountered. The progressive improvement of all the joints continued and on the 14th it was noted that "there is slight creaking in the right shoulder and some stiffness of the knees." In the hands there is marked wasting of arthritic type and much ulnar deflection. The left hand is the worse of the two and in this there is considerable stiffness of the middle and ring fingers. Patient can use her

hands well enough to knit and has been up some days." The temperature remained normal, or nearly so, until the day of discharge (Jan. 26th, 1905) except for one rise on Dec. 24th. On Dec 27th a trace of albumin was present in the urine and this increased to a moderate quantity on Jan. 3rd, after which it diminished and disappeared on the 6th. The general condition of the joints and the ability of the patient to use them progressed steadily up to the time of discharge to the Bath Hospital.

Remarks by Dr. ROBINSON.—This condition of acute, non-rheumatic, arthritis certainly showed such resistance to ordinary treatment and such marked improvement after the use of antistreptococcic serum that it seems only reasonable to regard the improvement as definitely related to this form of treatment. It would therefore be natural to surmise that the joint affection was due to some strain of streptococci employed in the production of the varieties (Pasteur and Lister Institutes) of the polyvalent serum used in the treatment of the case. As pointed out above there was no proof as to the nature of the joint affection as it did not seem justifiable to make cultures from the affected joints. This case is, however, worthy of note as showing that cases of acute rheumatoid arthritis of the type referred to by Dr. W. Hale White[1] at the Clinical Society of London on March 10th last, may apparently be very definitely benefited by antistreptococcic serum.

BRISTOL GENERAL HOSPITAL.

A CASE OF EXTENSIVE POLYCYSTIC DISEASE OF THE KIDNEYS ASSOCIATED WITH CYSTIC LIVER, ILLUSTRATING CERTAIN POINTS IN THE CAUSATION AND TREATMENT OF THIS CONDITION.

(Under the care of Dr. ERNEST W. HEY GROVES.)

THE patient, a man, aged 38 years, was admitted into the Bristol General Hospital on Sept. 8th, 1903, complaining of passing blood in his urine. He stated that 23 years previously he had pain in his right loin and passed blood for two or three days and then a small stone of about the size of a pea. No further bleeding took place until the last year, in which he had had it on two occasions for a few days at a time, the last being about two months previously. For the last ten days he had had blood in the urine whenever it was passed but with the exception of a dull aching in the right loin there had been no pain or any other irregularity of micturition. For the last 12 months he had been under treatment for anæmia and a "weak heart" and during this time he had lost flesh. On admission the patient said that he felt quite well but he was thin and looked very anæmic, with pale lips and mucous membranes. The pulse was regular and of high tension (72). The temperature was 99° F. The heart sounds were normal. The kidney was palpable on both sides. The left side felt normal, but on the right side there was a large mass in the position of the kidney which was oval, not tender, resonant and freely moveable on respiration. The urine was of specific gravity 1030; it was very dark red in colour with a copious deposit; it gave an acid reaction. A large quantity of blood cells was present. No casts or crystals were observed. The albumin was present about in proportion to the blood. The quantity varied from 50 to 12 ounces in the 24 hours and the percentage of urea was 1·8. The bladder on being examined by the sound and cystoscope was felt and seen to be normal.

On Sept. 16th nephrectomy was performed. The tumour in the right loin was exposed by the usual oblique incision and it proved to be a large polycystic kidney. It was removed without special difficulty as the parietes were thin and flaccid. The hand inserted into the wound left by the removal of the large kidney mass could palpate the abdominal viscera with unusual distinctness. The under surface of the liver was felt to be raised by smooth elastic swellings which felt just like the smaller cysts on the surface of the kidney. The left kidney could be felt and was large but no irregularity could be detected. Dr. W. S. V. Stock, who was assisting Dr. Groves, confirmed this observation.

Recovery from the operation was uneventful and for ten days the patient appeared to be doing well. The wound healed by first intention. He passed from 50 to 80 fluid ounces of urine daily with a percentage of urea varying from 0·5 to 2·3. On Sept. 24th there was occasional vomiting after food which increased until Oct. 11th but the amount of urine and of urea showed no marked alteration until Oct. 9th when he passed no urine at all and was in great pain. The pain was felt all over the abdomen but was most marked in the left flank. On Oct. 10th and 11th he passed only six and two ounces of urine respectively and it was deeply blood stained, containing many corpuscles and blood casts. A large fluctuating swelling could now be felt in the left kidney region. He was restless and had marked muscular twitchings, severe headache, and vomiting. The pulse was 120 and soft. The case was regarded as calculous anuria with hydronephrosis.

On Oct. 11th nephrotomy was performed. Directly the patient had been etherised his condition became very serious, the pulse being almost imperceptible. A lumbar incision was therefore made rapidly and a large cyst of the kidney was exposed. This was cut into and about one pint of urinous fluid escaped. The finger was thrust down into the hilum of the kidney and a small, hard stone was felt and extracted. The kidney was stitched to the parietes. The patient lived for three days, during which about one and a half pints of urine escaped from the wound each day but none passed by the urethra. The pulse remained at about 120; the tongue was dry and brown. Vomiting and muscular twitching continued but he had a cessation of pain. He died on Oct. 14th.

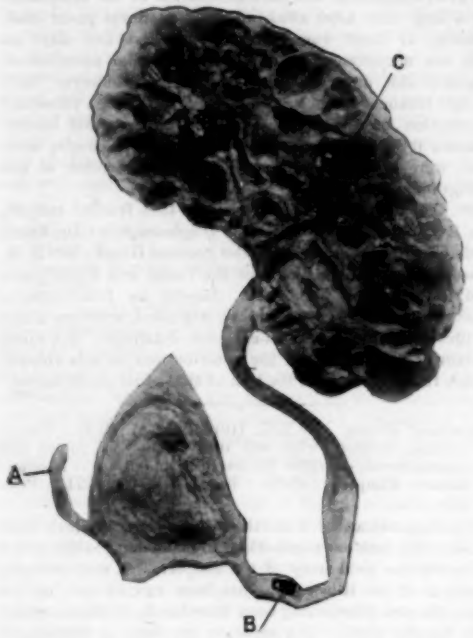
The following table shows the amount of urine and urea passed on different days:—

Date.	Amount in ounces.	Percentage of urea.	Remarks.
Sept. 15th... ...	40	1·8	Day before operation.
,, 17th... ...	52	0·5	Day after operation.
,, 19th... ...	64	1·8	—
,, 22nd ...	78	2·1	—
,, 24th... ...	84	0·8	Vomiting began.
,, 28th... ...	68	2·3	—
Oct. 1st... ...	60	2·1	—
,, 3rd... ...	48	2·1	—
,, 8th... ...	29	2·0	—
,, 9th... ...	0	—	—
,, 10th... ...	6	—	Blood and casts.
,, 11th... ...	2 20 by operation wound.	—	Left cystic kidney opened.
,, 12th... ...	25	—	—
,, 13th... ...	20	—	—
,, 14th... ...	?	—	Died.

Necropsy.—No regular post-mortem examination was allowed but the liver, kidney, spleen, and bladder were removed through the operation wound. The right kidney (removed by nephrectomy four weeks before) consisted of a "bubbly" mass of medium and small cysts, the largest of which was about one inch in diameter. It weighed 1 pound 3 ounces and measured 6 inches by 3½ inches by 2½ inches. On cutting it open a fair quantity of normal kidney substance was scattered amongst the cysts. The calyces were somewhat dilated and contained several small rough calculi of dark colour. The ureter was normal. The left kidney (removed post mortem) closely resembled the right, measuring 6½ inches by 3½ inches by 3 inches and weighing 1 pound 7 ounces. The cysts were similar in size and arrangement to those on the right side but many were filled with blood. Several calculi were present in the calyces. The ureter was slightly dilated and contained a rounded calculus tightly impacted at its lower end about one and a half inches from the bladder. The bladder was small and contracted but otherwise normal. The liver was normal in size and general appearance, weighing 2 pounds 12 ounces. But even before it was cut open a number of clear cysts could be seen just below the capsule. The largest cyst was only a quarter of an inch in diameter. The greatest number of cysts were on the posterior retro-peritoneal surface where they had been felt at the time of the operation. On section the liver tissue appeared to be normal, but the small cysts were scantily scattered through its substance. They did not seem to have any special relationship to the vessels or ducts. Microscopically, the

[1] THE LANCET, March 18th, 1905, p. 717.

cysts were seen to be lined by circularly disposed fibrous tissue, outside which was a layer of small round and spindle cells which intervened between the cyst and the normal liver cells. No epithelial lining could be found to any of the cysts.



Cystic left kidney with the bladder and ureter. A, Stump of the right ureter. B, Calculus impacted in the ureter. C, Calculus in the kidney substance.

Remarks by Dr. HEY GROVES.—There are many points of unusual interest in this case bearing upon the obscure questions of the etiology and pathology of large polycystic kidneys. The marked unilateral swelling, the severe hæmaturia, and the character of the urine all resembled the symptoms of new growth of the kidney, and it was this diagnosis which led to the nephrectomy. It was thought that as the left kidney was only slightly larger than normal and as the patient was passing a good quantity of urine and a good proportion of urea the left kidney was normal and that the right, being the seat of severe hæmorrhage and evidently being profoundly diseased, ought to be removed. And Morris gives it as one of the indications which require nephrectomy of a polycystic kidney where severe hæmorrhage occurs from a unilateral cystic organ. The cystic condition of the liver has often been observed in association with that of the kidneys but I do not know of an instance in which the condition has been observed during life as happened during the first operation on this case. But most remarkable of all was the very rapid enlargement of the left kidney and the development of a typical large polycystic kidney in the course of four weeks and in association with calculous obstruction of the ureter. The interest of this observation depends chiefly on the trustworthiness of the statement that at the time of removal of the right kidney the left was normal. Now this statement depends on three facts: first, that the left kidney could be felt in a thin subject and was only slightly larger than normal; secondly, that for 17 days after the removal of the right kidney the left kidney secreted urine of normal quantity and composition; and, lastly, that during the operation of removal of the right kidney, when the small cysts of the liver could be distinctly felt, the left kidney could be felt clearly and no irregularity detected. Of course, I do not suppose that the left kidney was free from cystic disease but the cysts must have been small and the kidney as a whole but little enlarged or disorganised. The enlargement of the left kidney which was present was regarded at the time as being due to the hypertrophy of the gland compensating for the disease and removal of the right. And yet within four weeks the left kidney was even larger than the right and was more completely disorganised by cystic formation. Clinically this enlargement of the left kidney was not observed until a few days before the occurrence of the fatal anuria. At least, I think that this case proves conclusively that the irritation of calculi and the obstruction to the outflow from the kidney caused by them are sometimes the exciting cause of the condition of large polycystic kidneys. And as to practical conclusions it seems safer to leave a polycystic kidney untouched even if there should be abundant evidence that the opposite kidney is at the time normal in size and function. Or, at any rate, in a case in which severe hæmorrhage is associated with a single polycystic kidney the utmost that it is safe to do is to open the diseased kidney and remove any calculi that may be found in its interior.

GOVERNMENT HOSPITAL, ALEXANDRIA

A CASE OF SUBPERICRANIAL DERMOID.

(Under the care of Mr. A. WEBB JONES.)

THE patient, a little Egyptian, aged seven years, presented a prominent swelling in the occipital region. The tumour was of about the size of a Tangerine orange and slightly asymmetrical in position. Its consistence was not uniform, parts appearing solid and parts only semi-solid. No impulse or pulsation could be obtained. It was firmly fixed to the cranium and in places the skin could not be picked up over it. It did not extend beyond the limits of the occipital bone. The right margin seemed to be formed by a bony ridge which was slightly but distinctly tender to the touch. The scalp presented the scars of many shallow ulcers and crusts which had first to be dealt with. The operation was commenced by dissecting down a horseshoe-shaped flap. The tumour then peeled off the cranium, leaving the bone bare beneath. It was, therefore, subpericranial in position. Recovery was uneventful. Macroscopically the growth was somewhat lobulated in outline but flattened on its cranial aspect. In parts it looked almost gelatinous, whilst at other points it was firm and fibrous. Dr. M. A. Ruffer, who kindly examined the growth microscopically, returned it as a cyst into which hæmorrhage had taken place. Unfortunately, the section did not include any of the cyst wall.

Illustration showing appearance of the patient before operation.

Remarks by Mr. JONES.—The absence of impulse and the suggestion of a bony margin were sufficient to suggest the diagnosis of dermoid cyst as most probable before operation. At the same time the case seems of sufficient interest to be worth publishing.

Reviews and Notices of Books.

International Clinics. Edited by A. O. KELLY, M.D., with various Collaborators. Vol. II. Fifteenth Series. London: J. B. Lippincott Co. 1905. Pp. 310.

THE opening paper deals with the Treatment of Acute Nephritis in Children, and as Dr. J. L. Morse rightly holds that it is impossible to treat this disease in children rationally without a general knowledge of the caloric needs and of the metabolism at this age, he enters first into a consideration of these facts. As regards the treatment of this disease the author points out that we can do little to help the acutely inflamed kidneys to do their work, and that therefore our main attention is to diminish the work they have to do. He considers that the supply of water should be limited at the commencement, as it is liable to increase the congestion, therefore enough should only be given to satisfy the thirst. With regard to drugs he holds that diuretics do more harm than good in the early stage. Diaphoretic remedies are the best for diminishing the œdema, and of these the most satisfactory in children are hot packs. Professor Hayem next writes on the therapeutic indications of kephir, and finds it is indicated in patients suffering from hypopepsia, apepsia, or hyperpepsia where there is weak secretion; in cancer; and in the cachexia caused by certain chronic disorders. It is contra-indicated in hyperpeptic patients with abundant secretion and dilatation of the stomach; also where there is pyloric stenosis. Dr. Barty King writes on the treatment of pulmonary hæmorrhage by adrenalin, basing his remarks on the special experience he gained as resident at Brompton, Ventnor, and Banchory. He concludes that the drug is contra-indicated in the treatment of pulmonary hæmorrhage. Dr. Sabouraud and Dr. Noiré supply a most interesting paper on the X-Ray Treatment of Tinea Tonsurans. They give the duration of necessary treatment as three months and point out that under former methods of treatment it was frequently two years; while the number of cases cured without entering the hospital is increased, space and money being thus saved. Dr. Robert Willson contributes a lecture on the Diagnosis of Incipient Thoracic Tuberculosis, which is one of the most valuable in the volume; it enters fully into all the various points regarding the early recognition of the disease and is a monograph on which the author is to be thoroughly congratulated. Dr. T. Rutter Williamson's remarks on Plague will be sure to evoke attention at the present time. He writes on the etiology of the affection; next on the paths of invasion—namely, the skin, nose, throat, and conjunctivæ of the eye, a case being mentioned of a nurse in Bombay receiving some sputum in her eyes from a plague patient coughing; then the various forms of the disease are considered—the bubonic, pneumonic, septicæmic, ambulatory, and pestis minor; finally the diagnosis, prognosis, and treatment are laid down with much completeness; but the treatment of the disease in Hong-Kong by large doses of carbolic acid is not mentioned although favourable reports have been received of it.

In the surgical section Mr. E. Corner has an excellent paper on Hernia in Children, recommending as a general rule that up to the age of four or five years the condition should be treated with dieting, rest in bed, and a light truss; at five years of age, unless other circumstances preclude such a course, he considers cases should be submitted to operation. Dr. Felix Terrier gives us his experience of the use of Scopolamine as a General Anæsthetic in Surgery. This drug may be used hypodermically with morphine, or it may be employed together with chloroform, which method the author holds most advisable for cases of laparotomy. Here the scopolamine is given in a decreased amount two hours before operating, chloroform being administered at the operation. Amongst the advantages claimed for the procedure are the suppression of operative apprehension and of the stage of excitement preceding muscular relaxation, absence of vomiting after awakening, and the continuation of the anæsthesia for a long time after awakening, the patients never complaining of their wound during the first two days as they are accustomed to do after the usual anæsthetics. Amongst the more special disadvantages, however, have to be reckoned the vaso-dilatation and the persistent contraction of the abdominal wall which would contra-indicate it in abdominal surgery. These two effects, however, were not seen when only a single injection of one milligramme was given.

Dr. Chauncey Palmer writes well on that fruitful subject, the Rational Therapy of Uterine Displacements; Dr. Frank Lydston writes on Injuries of the Prostate Gland; Dr. D. N. Eisendrath on Enlargements of the Testes and Epididymis; and the late Dr. Thomas H. Manley on Intra-capsular Fractures and Dislocations at the Hip Joint, a lecture which is illustrated by some well-executed drawings. But space forbids us to mention all the contributions to this volume, which fully comes up to the best of that of its predecessors.

Diseases of Women. By E. C. DUDLEY, A.M., M.D. Fourth edition, revised, with 419 illustrations in colour and monochrome, of which 18 are full-page plates. London: Henry Kimpton. 1905. Royal 8vo, pp. 771. Price 25*s.* net.

THE appearance of a fourth edition of Dr. Dudley's well-known text-book has enabled him to make many revisions and to re-write a good many of the chapters. A very sweeping revision of the illustrations has been carried out, no less than 300 new ones having been introduced, all drawn especially for the work. The separate drawings of instruments have been eliminated and pictures of those of any importance have been introduced into the illustrations of the actual operations. The book is essentially an operative text-book and most of the major and minor operations of gynæcology are well described and illustrated. In supravaginal hystero-myomectomy and total abdominal hystero-myomectomy the author recommends that the stumps of the broad ligaments should be brought together in the middle line so as to form an antero-posterior scar and not a transverse one. In this way Dr. Dudley thinks the retraction of the broad ligaments to the side walls of the pelvis is prevented, and the rectum and bladder remain separated by a considerable thickness of tissue instead of being quite close together, while the risk of the bladder being drawn over the stump in an endeavour to cover it with peritoneum is avoided, a condition which at times results in some irritation of the bladder. The same principle is applied to the operation recommended for the treatment of cases of prolapse of the uterus and cystocele. Here the anterior vaginal wall is split and the redundant tissue removed; the incision is then carried round the cervix so as to lay bare the cellular tissue at the bases of the broad ligaments; the raw surfaces thus made are then sewn together so as to unite the bases of the two broad ligaments and at the same time to carry back the cervix into the hollow of the sacrum. As the author remarks, the most fixed point at the upper part of the vagina is its attachment to the broad ligaments and the object of this operation is not only to fix the lower end of the vagina but also to secure it firmly at its most fixed point above. As we observed in our review of the last edition of this work, Dr. Dudley is not in favour of the extensive abdominal operations now performed by many surgeons for the radical treatment of cancer of the neck of the uterus. His opinion is interesting in view of the fact that the removal of all the glands which may be affected in such cases is now recognised by most gynæcologists as an

impossible task, at any rate with any safety to the life of the patient. The necessity for a free removal of the cellular tissue, an entirely different problem from that of the total removal of the glands and one of even greater importance, is hardly laid enough stress upon in this work. We find no mention of the vaginal incision practised by Schuchardt in performing vaginal hysterectomy for rendering the free removal of the parametrium easier, a manœuvre which we think will be more and more practised as its advantages become better known and appreciated. The book has many merits, although its pathology is, in some instances at any rate, rather old-fashioned. The illustrations are excellent and well reproduced.

The Rational Treatment of Running Ears. By F. FAULDER WHITE, F.R.C.S. Eng., Honorary Surgeon to the Coventry Hospital. London: Iliffe and Sons, Limited. 1905. Pp. 35. Price 5*s*.

THIS pamphlet by Mr. Faulder White is stated by him to be a public protest against the dangers of intra-meatal operation and is intended to draw the attention of the profession to his method of otectomy. In a certain percentage of cases intra-meatal operations are attended by no inconsiderable risk and this risk is largely enhanced by carelessness with regard to the use of antiseptics, a recognition of which fact is sufficient materially to minimise the danger. With regard to Mr. White's method of otectomy, which might seem to the uninitiated to mean the removal of the whole ear (external, middle, and internal), it is to be noted that removal of the larger ossicles only is meant, or ossiculectomy. Mr. White has for many years advocated certain methods of treatment which have not been accepted by the profession at large and the earlier pages of his work are largely devoted to criticising the opinions of others in no very measured terms. The author has the greatest abhorrence for the radical operation on the mastoid for the cure of chronic suppuration of the middle ear, which he considers an operation having a relatively high mortality, apparently omitting to notice that a large number of radical operations on the mastoid are not done simply to cure suppuration but on account of the existence of serious intracranial lesions. Some of his remarks are naïve, as when he talks of having "wasted one of my pamphlets on otectomy on a medical practitioner." The pamphlet concludes with a reprint of a paper read before the Birmingham branch of the British Medical Association. In its way this booklet is quite interesting, as it is reminiscent of the style of medical literature in vogue at the time when scientific as well as political lampoons were admissible. We have, however, outgrown the style.

LIBRARY TABLE.

The New Zealand Department of Agriculture: Division of Veterinary Science.—We have received a number of leaflets from the official department of the Veterinary Department of the New Zealand Board of Agriculture and they give an idea of the good work which is being done amongst the farmers of the colony. The welfare of New Zealand largely depends upon its agricultural elements and there is no doubt that the spread of knowledge of this kind helps forward the prosperity of the country. In an article by Mr. J. A. Gilruth, M.R.C.V.S. (chief veterinarian and bacteriologist), on Abortion and Sterility in Cows the author estimates that these troubles alone cost the colony from £2000 to £3000 per annum, an estimate based on the increased yield of milk which would otherwise result. Mr. Gilruth treats in an intelligent manner of the causes of abortion and sterility, the means of spread, symptoms, and treatment, the latter being given in full detail with illustrations. For those who are unable to get the personal services of a veterinary surgeon the advice is very plainly put. A leaflet on Blackquarter might well teach the English Board of Agriculture a lesson, as in New Zealand "vaccination" against this dreaded disease is performed free of cost to the owner, and wherever the disease has appeared or is even suspected it is compulsory for the owner of the affected stock to notify the nearest stock inspector. It is especially prevalent in certain districts which are clearly defined in an accompanying map. No cattle under the age of 18 months may be removed unless they have at least seven days previously been "vaccinated" and branded by the inspector and have also received a permit authorising their removal. The penalty for any breach of the law is from £2 to £200. In the pamphlet Mr. Gilruth defines clearly the cause, symptoms, and treatment and also the means whereby the disease is spread. Many pamphlets bearing on veterinary subjects are issued annually by this enterprising department and we have received two others, on Diseases of the Horse's Foot and on the Common Ailments of Foals respectively, written by Mr. H. C. Wilkie, F.R.C.V.S., another of the officers of the department. The pamphlet on the diseases of foals in particular should, if the advice is followed out, be of much value to breeders.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India: Snake Venoms in relation to Hæmolysis. By Captain GEORGE LAMB, M.D., I.M.S. New Series, No. 17. Calcutta: Office of the Superintendent Government Printing, India. 1905. Price 6 annas or 7*d*. Pp. 15.—Of recent years a considerable amount of work has been done by investigators in America and Germany in the study of the action of snake venoms in relation to hæmolysis. Captain Lamb at the commencement of his memoir summarises this work. He points out that Flexner and Noguchi in America first demonstrated the fact that washed blood corpuscles were not hæmolysed by venom, but that if the separated serum were restored to each of the several kinds of blood corpuscles treated with venom lysis took place. These observers concluded that venoms in the process of hæmolysis acted only as intermediary bodies requiring a complement to complete the reaction; they also, amongst other conclusions, showed that fresh snake venom contained no complement. Kyes and Sachs in Germany worked almost entirely with cobra venom, confirming in a general way the researches of Flexner and Noguchi, but they in addition demonstrated that, while cobra poison could by itself hæmolyse the washed cells of certain species, it had no action on the washed cells of certain other species, so that as regards the action of cobra venom the red cells of animals could be divided into two groups—viz., (*a*) those which are sensitive to cobra venom alone, and (*b*) those which are not dissolved by cobra venom alone. Kyes also prepared a new compound, a cobra venom lecithide. Captain Lamb now investigated various other venoms as regards their action on the red cells of different species of animals: (*a*) on the washed cells alone; (*b*) with the addition of the homologous serum as complement; and (*c*) with the addition of free lecithin as complement. The poisons used were chiefly those of Indian snakes of the colubrine and viperine families. In this memoir Captain Lamb first describes the technique employed, the animals experimented on being the dog, the ox, and the goat. His results are very clearly shown and differ somewhat from those already enumerated. Thus, among other points, he finds, in direct opposition to the conclusions of Flexner and Noguchi, that in no single instance the intermediary body or amboceptor was taken up and fixed by the cells in the absence of complemental substance, but, on the contrary, it is found intact in the supernatant fluid after centrifugalisation. Captain Lamb concludes his interesting research by stating: "If, therefore, the process of venom hæmolysis is strictly analogous to serum hæmolysis and to bacteriolysis, we should expect to find that the amboceptor in both these

instances does not join on to the receptor of the cell under the same conditions, that is, in the absence of complement or modified complement. Such experiments are in progress." We await these further experiments with much interest.

JOURNALS AND MAGAZINES.

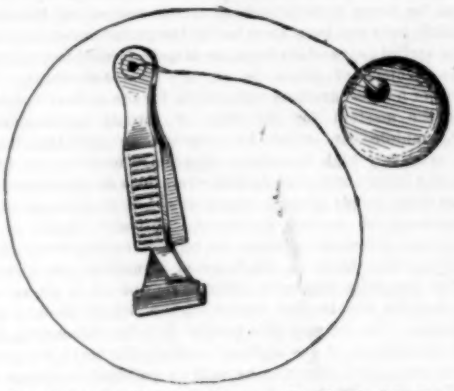
The Journal of Physiology. Edited by Sir MICHAEL FOSTER, K.C.B., F.R.S., and J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXIII. No. 1. London: C. J. Clay and Sons. Pp. 80. Price 5*s.*—The articles contained in this number are the following:—1. On Folin's Theory of Proteid Metabolism, by D. Noel Paton, with three figures in the text. The theory advanced by Folin is that whilst a portion of the proteids ingested is applied to tissue metabolism another portion undergoes immediate decomposition, the nitrogen it contains being eliminated and the carbon and hydrogen undergoing oxidation and supplying energy like the carbohydrates and fats. Folin believes also that "the proteid metabolism of the cells which is the essential part of their activity may be distinguished from a non-essential and variable metabolism which seems to have for its purpose the elimination of nitrogen to render the proteid available as a source of energy." Dr. Noel Paton on the whole supports this theory though with some modification. His view is that food proteid splits into a nitrogen-containing part and a part containing carbon, hydrogen, and oxygen. The tissue proteid in like manner splits, probably under the influence of erepsin, into a nitrogenous and a non-nitrogenous part. In the liver the nitrogen-containing portions both of food and of tissue proteid are broken up into urea and glycogen, the former of which is eliminated by the kidney, whilst the non-nitrogenous portions, also undergoing conversion into glycogen in the liver, pass to the muscles and are in part the source of their energy. A relatively small portion of the food proteid is applied to the building up and repair of the tissues. 2. Osmotic Pressure of Solutions of Hæmoglobin, by E. Waymouth Reid, Professor of Physiology in University College, Dundee. The conclusion at which Professor Reid arrives is as follows. The fairly constant osmotic pressure in relation to concentration in solutions of once crystallised hæmoglobin, coupled with the appearance of the solutions in the ultra-microscope, leads to the conclusion that this substance when prepared as indicated in the article and taken up in water is in a state of true solution. 3. Digestion Leucocytosis: II., the Source of the Leucocytes, by Alexander Goodall and D. Noel Paton. The authors conclude that the bone marrow is probably the sole or most important source of the cells which constitute digestion leucocytosis. 4. Some Observations of the Movements of the Intestine before and after Degenerative Section of the Mesenteric Nerves, by J. N. Langley and R. Magnus, with 13 figures in the text. The parts experimented on were the lower part of the descending colon of the rabbit and the jejunum and ileum of the cat. The local effects on the normal intestine of atropine, strychnine, cocain, adrenalin, nicotine, and of chloride of sodium were first observed, as well as the effects of pinching, and these results were compared with the effects produced by the same drugs after division of the pre-ganglionic and post-ganglionic nerves to these parts. The section was not found to exert any marked influence on the action of the drugs in increasing or diminishing peristalsis. 5. The Gaseous Metabolism of the Kidney, with five figures in the text, by J. Barcroft and T. G. Brodie. The authors of the article find that diuresis produced by urea and sodium sulphate is accompanied by a large increase of the oxygen absorbed by the kidney and is not always accompanied by increased blood-flow. 6. The Response of the Developing Retina to Light and to Radium Emanations, by T. H. Milroy. Up to the fifteenth day of incubation the chick's retina shows no signs of response to light. Subsequently to this period the incidence of light on the retina causes the pigment cells to throw out short pigment-holding processes which clasp the rudimentary clubbed protrusions of the young rods and cones. Radium rays drive the pigment backwards and disintegrate the cells. 7. Degeneration of Nerve Cells of the Rabbit's Superior Cervical Sympathetic Ganglion as the Result of Interfering with the Blood-supply, by Ivor Tuckett, with a plate. This number also contains the Proceedings of the Physiological Society.

New Inventions.

A NEW PERITONEAL CATCH AND HOLDER.

CATCH forceps for securing and everting the edges of the peritoneum in cœliotomy often get inconveniently in the way. I showed at the British Gynæcological Society some time since a clip with a small weight attached which I had been in the habit of using. Subsequently, I had a very small forceps made for the same purpose. I have now, however, a holder which has been made for me by Pfau of Berlin which answers admirably. Like the original little appliance, it is constructed on the principle of some forms of tie clip. It is hand made. The edges are very finely serrated, it is light but very strong, and maintains a firm hold of the peritoneum without any laceration or injury. The small weight is made of lead and is sufficiently heavy when allowed to fall over the side of the abdomen to evert the peritoneal edge well. The wire I use for attachment to the clip is bronze-aluminium, and as the whole appliance can be sterilised is most convenient. It can be attached and freed in a moment. Fig. 1 shows the complete apparatus, natural size; Fig. 2, the method of applying it; and Fig. 3, the holder suspending the peritoneum. By this means the latter can be held well up at

FIG. 1.



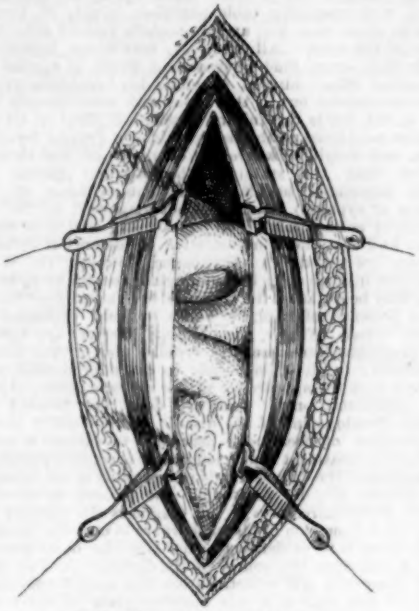
Weight of leaden disc, 4½ drachms; weight of holder, 1 drachm.

FIG. 2.

Method of application

either side and out of the way. Incidentally, I may add that the holder can be used for clutching other structures than the peritoneum.

FIG. 3.



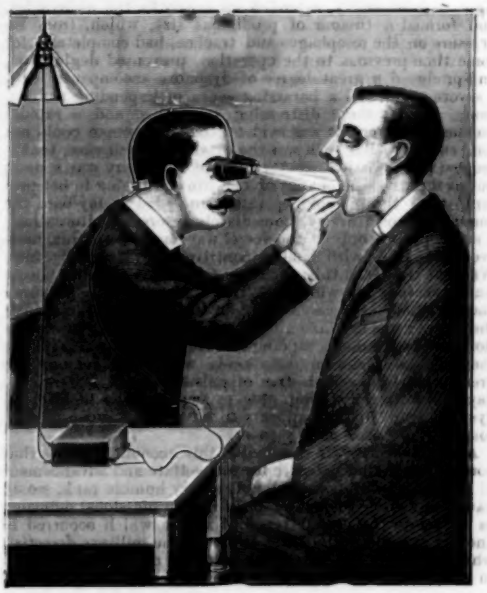
Holders suspending the peritoneum.

The appliance can be had of Messrs. Arnold and Sons, West Smithfield, London, E.C.

Harley-street, W. H. MACNAUGHTON-JONES, M.D. R.U.I.

AN ELECTRICAL APPARATUS FOR SIMPLIFYING THE EXAMINATION OF THE THROAT AND THE NOSE.

THE difficulty, not infrequently encountered, of making a satisfactory examination of the throat and the nose does not exist so much in the manipulation of the instruments as in the focussing of a strong, steady light on the parts. The electric head-lamp here represented overcomes the difficulty, as the light is automatically focussed on the region to be examined without requiring any special dexterity on the part of the examiner. The current for the lamp is drawn from the ordinary town supply by a simplified and inexpensive form of lamp resistance which is capable of being employed with any voltage and with either the continuous or alternating variety of current and which does away with the necessity of a wire resistance or secondary battery. The resistance can also be used for working any kind of operating head-lamp, a lamp for the cystoscope, for transillumination, or other similar purpose. The advantages claimed for the apparatus for general use, where the electric light is available, are the following: 1. Neither a special bracket-lamp nor a head-mirror is required. 2. The examiner, having once turned on the light, has merely to occupy himself with the manipulation of the instruments with which he is making the examination. The arrangement of the lamp is such that whatever part the examiner is inspecting is automatically illuminated with strongly focussed rays. 3. Narrow cavities such as the nasal, post-nasal, and aural passages are examined, generally speaking, with greater facility with this apparatus than when the reflecting head-mirror usually sold is employed since the latter has frequently too broad a focal diameter for this purpose. 4. The lamp is useful for operations in such regions as the maxillary antrum, the frontal sinus, or the mastoid. 5. It can be employed for demonstrations or at meetings where a large number of lamps are required and where the rapid adjustment of the light by each person examining is desirable. The "eye tubes" depicted in the illustration can be removed if desired.



The apparatus is made by Messrs. James Woolley, Sons, and Co., Limited, Victoria Bridge, Manchester.

Manchester. EUGENE S. YONGE, M.D. Edin.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 29th, 1827.

ANEURISM OF THE CAROTID,

In which the Artery was tied beyond the Tumour. By DR. BUSH.

To the Editor of THE LANCET.

SIR,—The great publicity which your widely-circulated Journal has given to the late splendid improvements and discoveries in the cure of aneurism, and the *manly* and disinterested manner in which you have ever supported the views and principles on which they were founded, have had an incalculable influence in establishing their merit among the professional public. Gratifying, then, in the highest degree, must it be to you to know that your unprejudiced labours have not been thrown away upon a barren soil, and that those discoveries, whose utility, in the time of need, you advocated in so powerful a manner, are fast establishing themselves on the immutable basis of practical experience. To you, whatever honour may be due to their author, the medical profession will in future and distant times owe a lasting load of gratitude, for the helping hand your Journal held out in supporting them, against a phalanx of envious and malicious enemies, and of their corrupt or ignorant journals.

Holding these sentiments towards you, you will not I am sure consider it singular in me, though wholly unknown to you, to take the earliest opportunity to communicate the account of an operation performed for the cure of an aneurism by the ligature of the artery on the distal side of the tumour, one highly corroborative of the truth of those views which you have so strenuously supported.

The case occurred in private practice here, and the patient fortunately fell under the hands of a most enterprising young

surgeon, and one who enjoys a very deserved reputation as a successful operator, Dr. Bush, Assistant Staff Surgeon.

The aneurism, which had originated in the root of the right carotid artery, extended up nearly to the os hyoides, and formed a tumour of prodigious size, which, from its pressure on the œsophagus and trachea, had completely, for some time previous to the operation, prevented deglutition, and produced a great degree of dyspnœa, accompanied with a severe cough and a harassing sense of impending suffocation. Under these distressing symptoms, and a rapidly increasing tumour, it was evident the poor woman could not long survive. But such was the extent of the disease, that it seemed problematical whether any of the artery was sound; but as there was no chance of her life continuing in her present state, the intrepid operator proceeded to lay bare the common carotid artery, immediately before its bifurcation; a small portion only of the vessel was sound; on this, however, Dr. Bush with facility contrived to place a ligature. When he tightened this, a circumstance of a peculiar nature was observed, but which was also noticed in Mr. Wardrop and Mr. Lambert's cases—viz., an instantaneous collapse of the tumour to a certain extent. Immediately after the operation, the poor woman experienced the greatest relief. Since then she has gone on remarkably well; the tumour has greatly subsided, and is free of pulsation; she is now, ten days since the operation, able to swallow, has little or no dyspnœa, and indeed appears to have every prospect of a complete and permanent recovery.

Allow me, Sir, after concluding this account, to state that nothing but a sincere desire for the welfare and advancement of a profession, in which I hold a very humble rank, would have tempted me to deviate so far from professional delicacy, as to relate the circumstance of a case which occurred to another surgeon, were I not aware of the military *despotism* which reigns in the medical department of the army, which in all probability would prevent even the gallantry of Staff Surgeon Bush promulgating the results of this important operation.

I am, Sir, with much respect,
Your obedient servant,
Sept. 20, 1827. J. S., Surgeon, Chatham.

[We have indeed been gratified in an eminent degree by the perusal of the above communication, not so much because it supports our own opinions, as because it adds another proof, if any there be yet required, to establish the propriety of an operation in cases of aneurism, which hitherto have been considered hopeless, and which perhaps may yet be the stepping-stone to more important discoveries. We cannot, notwithstanding the fears expressed in this letter, help believing that Dr. Bush will, at no very distant period, lay before the profession a detailed account of every circumstance connected with this important operation.—ED.]

VENEREAL DISEASE IN THE ARMY.

THE Advisory Board for the Army Medical Services has issued a third report dealing with the important subject of the Treatment of Venereal Disease and Scabies in the Army. This third issue contains reports by Major C. E. Pollock, R.A.M.C., on the methods of treatment employed in foreign military and civil hospitals. They are grouped according to the countries visited. The establishments of France, Germany, Austria-Hungary, Italy, Russia, Sweden, Denmark, and Belgium have all been visited and in this brochure, which extends to 57 pages, Major Pollock gives a description of the methods of procedure adopted in some 23 different great centres and by the foremost clinicians who deal with these diseases on the continent of Europe. In all the countries named, with the exception of Italy, regulations are in force for the control of prostitutes and medical treatment is provided for those found to be infected at the periodic examinations to which they are subjected. In regard to the incidence of venereal diseases in the Italian army it may be noted that while in the north of Italy the admission-rate is about half that in the English army, in Messina, in the south, the admission-rate exceeds our English rate by more than half. At the same time it is to be noted that in Italy primary and secondary syphilis together form only about one-fifth of the total venereal diseases.

On reading this interesting and instructive report we are struck with the following points which are brought prominently forward by Major Pollock. 1. That in military hospitals on the continent each division for the treatment of venereal diseases has a room fitted up as an operating theatre, with operating table, steriliser, supply of instruments in glass case, &c., and a specially trained orderly in charge of the room. All dressings, inunctions, injections, &c.—in fact, every kind of treatment which is applied by the medical officer himself or under his immediate supervision—are carried out in this room with strict asepsis and never in the wards or sanitary annexe. 2. That in all the countries mentioned, with the exceptions of France, Sweden, Russia, and Belgium (where the character of the chancre together with the state of the inguinal glands are usually considered to afford sufficient evidence of the presence of syphilis), syphilis is not diagnosed till the appearance of constitutional symptoms prove that it is really present and that the administration of mercury is deferred till these are noted. At Wiesbaden, however, Dr. Wibel allows that in some cases indurated chancre with amygdaloid glands may be sufficient to convince the skilled practitioner of the presence of syphilis. The opinions expressed by German writers (Finger, Lang, Joseph, Lesser) are against the "preventive" treatment of syphilis and for the following reasons: (*a*) it is impossible to diagnose syphilis with certainty from the appearance of the chancre alone; (*b*) the early administration of mercury does not prevent the ultimate development of the disease or appreciably curtail the duration of treatment necessary to insure a cure; (*c*) when the treatment is delayed till the secondary symptoms have appeared the disease yields more readily to the influence of mercury; (*d*) by permitting the patient to convince himself of the correctness of the diagnosis the surgeon will secure his coöperation in his endeavours to cure the disease; and (*e*) there is no evidence to show that the delay has any harmful effect on the course of the disease. 3. That mercurial inunctions and injections are now almost universally employed and that as a rule mercury given by the mouth does not form any part of the treatment of syphilis. However, in the out-patient departments in the civil hospitals of Paris mercury pills are prescribed but in Berlin the administration of mercury in pill form is not considered to be a thorough or a satisfactory method of treating the disease. With regard to the inunction of mercury Dr. Wibel of Wiesbaden thinks that in military hospitals plain hot baths would be just as useful as salt ones prior to the applications and that patients can be taught to rub each other satisfactorily, so that trained rubbers are unnecessary. 4. The excellence of the arrangements for the plan of treatment over the four or five years during which it is carried on in each case and of the printed advice given to the patients as to the necessary precautions to be taken. 5. The definite statement that syphilis can be cured by treatment lasting, including intervals of rest, at least four years, made in writing to the patients of the Val-de-Grâce Hospital. 6. In regard to the treatment of gonorrhœa, in the Berlin hospitals and in many others Thompson's two-glass test is first applied to see whether the posterior urethra has become involved. In most of the countries Janet's irrigations are being used at present, but in Germany, where Neisser's views as to gonorrhœa and its treatment have been pretty generally adopted, this is not the case. For the treatment of scabies pure balsam of Peru or styrax has been largely used. Treatment by balsam of Peru is found to be very satisfactory but in some countries it has been given up on account of the expense and some preparation of sulphur has been substituted.

Major Pollock quotes Professor Gaucher's explanation of the treatment of mercurialism; it is an interesting one, and one that may have a practical application when choice is made of the preparation of mercury to be prescribed. In three appendices to this issue the rules as to treatment and regimen, as distributed among Professor Gaucher's out-patients at St. Louis, to Dr. Queyrat's out-patients at the Ricord Hospital, and at Professor A. Neisser's klinik at Breslau are given in full; they may be studied with advantage. As this report does not touch on the question of results or of the frequency of the appearance of tertiary syphilitic symptoms we are unable to form any estimate from the communication as to the relative value of the different lines of treatment recommended.

We consider the report to be a valuable contribution to our knowledge of the continental methods of treatment. It

will no doubt be carefully studied by a wide circle of practitioners both by those bearing His Majesty's commission and by those in civil practice. The methods of treatment in vogue are not merely indicated, as is the case in so many text-books, but the reader will find a careful description of the different plans adopted which much increases the value of the brochure. The Advisory Board is to be congratulated on the appearance of this issue and Major Pollock deserves credit for the conscientious way in which he has carried out the special commission which was assigned to him.

MEDICINE AND THE LAW.

Medical Men and Cases attended by Midwives.

A CORRESPONDENT, a medical practitioner, writes to inform us of the circumstances in which he recently received an urgent summons to attend a confinement, accompanied by a note containing particulars of the case in the form prescribed by the rules of the Central Midwives Board. The cause assigned by the midwife for requiring medical assistance was the condition of the newly born child who, as a matter of fact, expired soon after the arrival of the medical man. Our correspondent attended the case at a time when his practice required his presence at his surgery and he adds: "The mother is already hopelessly in my debt and it will be nothing but a farce to send her any account for this visit." He also inquires as to the relative liability to pay his fee incurred by the patient and by the midwife. The awkward situation which arises in such cases is due to the obligation upon the midwife under the rules made by the Central Midwives Board and approved by the Privy Council to recommend that medical aid should be summoned upon certain conditions being observed and by the absence of any provision for the payment of the medical man when the patient is unable to do so. This difficulty the Central Midwives Board is, we believe, endeavouring to remove by procuring powers for the payment of the medical man's fee in suitable cases by the local authority. At present the position is fairly clear. The midwife is bound to recommend that a medical man should be summoned but naturally she incurs no liability for the payment of his fee. The family is not obliged to call him in nor is he obliged to go when called. His position when sent for is the same as in any other summons to a patient and the fact that the person whom he is to attend has been advised by a midwife that he is needed does not affect it. The decision whether he will go or not rests with him and if he decides not to do so because his attendance probably will be gratuitous he risks being censured by the public or by a coroner's jury as heartless; on the other hand, if he goes he is likely to earn no credit and little or no gratitude by what is, in fact, a deed of charity. It is to be hoped, however, that, as has been mentioned above, arrangements for the payment of fees will be made in cases of this class where the life of a woman or of her child is involved and where the fact that the attendance must be gratuitous might cause medical assistance to be withheld or to be delayed.

The Liability for Fees in the Case of Workmen.

A correspondent, a Poor-law medical officer, received a visit from an employer who requested him to attend a workman who had been injured and this he accordingly did. The medical man was under the impression that the employer intended to be responsible for his charges but nothing was said definitely as to this and the employer intended to obtain, and subsequently obtained, an order for medical attendance from the relieving officer. This order did not reach the medical man and he was not aware of its existence until after he had sent a statement of his fees to the patient. He now seeks to be advised whether he can obtain payment from the employer who denies liability. The statement which was sent by inadvertence to the patient has since been sent to the employer. If we have correctly understood the facts to be as above stated we should say that our correspondent had better not endeavour to press a claim upon the employer which he would very likely not be able to enforce. The facts put in the strongest light possible on the side of the medical man do not seem to go farther than this—that he thought that the employer was engaging him to attend the workman but that the employer never intended to do so and never said or wrote anything to that effect. On the other hand, the employer did ask for parish aid for his servant. The sending of an account to the patient would be taken into consideration by the county court judge when he was asked to say that the medical man had all the time looked to the employer only for payment. The question as to whether an order for parish relief was sent to the medical man at the proper time might perhaps be gone into by the county court judge but even if some irregularity took place as to this it would hardly affect the question whether the employer intended to pay. The whole matter appears to have been an unfortunate mistake. It is advisable that whenever it is possible a medical man who is not clearly summoned by the patient or on his behalf should ascertain by direct question and answer who it is who employs him.

EPIDEMIC CEREBRO-SPINAL MENINGITIS AT IRTHLINGBOROUGH.

A REPORT on the inquiry made for the Local Government Board by Dr. R. Farrar into the occurrence of epidemic cerebro-spinal meningitis in the village of Irthlingborough (Northamptonshire) during the earlier months of this year has now been issued.[1] Dr. Farrar gives in detail clinical histories of 29 adults and children under the care of Dr. W. Robb and Mr. T. D. Bird of Irthlingborough who suffered from this disease. These include four fatal cases, in two of which Dr. Mervyn H. Gordon found, in nasal mucus or cerebro-spinal fluid, an intracellular micrococcus negative to Gram's stain and morphologically indistinguishable from Weichsel-baum's meningococcus. Other cases in which recovery took place were severe and recovery was protracted, while in certain of the cases which occurred in invaded households the symptoms were so slight that the cause might easily have been unsuspected had it not been for the illness of other members of the family. Some of the non-fatal cases presented symptoms closely resembling those of acute influenza, although nearly all were characterised by spinal pain and tenderness. The severe and fatal cases appear to have been typical of cerebro-spinal fever. The disease affected comparatively few households in the village. In one household (Mr. C.) five out of eight persons were attacked; in another (Mr. T.) seven out of 12 suffered; other instances of multiple invasion of households were those of Mr. L., where four out of nine persons were attacked; of Mrs. S., where the proportion was two out of three; and of Mrs. J., where, if the illness of her children was cerebro-spinal fever, three out of five suffered. Dr. Robb, who attended several of the patients, himself suffered from a mild attack characterised by headache, pains in the neck, and numbness and tingling of the extremities.

The "multiple invasions" of houses, together with evidence that in three instances the first person to be attacked in a household had been in personal relations with the sick or with other members of a household already attacked, suggest that the disease was transmitted directly from person to person or by the families of the sufferers. Dr. Farrar shows, however, that it is necessary to take account of other circumstances which do not favour the explanation of direct personal infection. The most striking of these is the time which elapsed before attack in the case of persons more or less continuously in relation with the sick or residing in an invaded house. Thus Mrs. T., after nursing a case for some three weeks, fell ill on Feb. 9th; no other case occurred in Mrs. T.'s family until March 19th, while there followed another case in March, two more in April, and finally one on June 7th. Similarly Mrs. A. C., who had been attending a patient suffering from cerebro-spinal fever since the middle of March, was not herself attacked until May 19th. Other instances of the same kind are given by Dr. Farrar who also points to the circumstances that four teachers at one primary school living in different parts of the village were attacked, while no cases (with one doubtful exception) occurred among any of the children attending this school. No evidence could be obtained as to the prevalence of similar disease in the neighbourhood of Irthlingborough or as to the manner in which it became introduced into the village.

[1] London: Wyman and Sons. Edinburgh: Oliver and Boyd. Dublin: E. Ponsonby. No. 213. Price 6d.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 30, 1905.

Sanatoriums for the Working Classes.

OF all the results of the modern study of bacteriology none perhaps is more full of encouragement and of promise to alleviate human suffering than the knowledge gained as to the causation and nature of tuberculosis. We have learnt that a disease formerly regarded as inevitable and hopeless is, to some extent at least, both preventable and curable. We say "to some extent" advisedly, since we do not know that the extermination of the whole race of tubercle bacilli can be effected by any available means and it is unfortunately true that with our present methods we cannot hope to cure all cases of the actual disease; hence it is well that the undue optimism aroused by premature assertions in either direction should be dissipated. But we have ascertained beyond the possibility of doubt that much can be done for both prevention and cure of the disease and we know at least the elementary principles which should guide our efforts. As the great source of infection exists in the subjects of advanced pulmonary tuberculosis who constantly expel into the air particles teeming with virulent bacilli, we must aim either at isolation of such cases or at least at such supervision as shall render them less dangerous to others. And the supervision must be coupled with instructions to the patient, for only with the patients' coöperation can real good be done. On the other hand, early cases of the malady can be arrested and some actually cured by being placed in healthy conditions amid a constant supply of fresh air and with plenty of nourishing food, and we must endeavour by all the means in our power to secure for our poorer classes, whose home conditions are defective in these respects, the provision of suitable institutions where they can be properly fed and treated. A vigorous article in our columns this week by Dr. RONALD MACFIE supplies grounds for thinking that too much—far too much—has been expected from sanatoriums but as Dr. MACFIE well points out, it is not only the treatment received in sanatoriums which is of importance; the education obtained by patients who undergo even a short period of such supervision is of incalculable value both in guiding them as to the course of life which they should in future lead and also in spreading through them to ever-widening circles of the population a knowledge of the principles of health. When the question of the provision of sanatoriums adequate to the needs of the working classes is mooted many persons are appalled at the magnitude of the expense apparently involved in such an undertaking. Dr. MACFIE urges, from an obviously first-hand acquaintance with the whole question, that such apprehensions are justified, while other authorities consider that they arise from a too limited point of view and from the resulting failure to appreciate the whole of the factors in the problem. Every sufferer from tuberculosis is a loss to the earning power of the nation, and the actual financial gain which may be reasonably anticipated from the adoption of measures calculated to enable a large number of such sufferers to return to productive employment warrants a great expenditure in the erection and management of the necessary institutions. The question is whether it is possible to erect enough sanatoriums and to provide for the reception of a sufficient number of early cases to make the system economical in the long run. We are not yet in possession of sufficient evidence to speak dogmatically.

Appeal can, of course, be made to the actual experience of the German people, but unfortunately there is no solid opinion as to the value of the German results.[1] In Germany the law renders it compulsory upon every workman to insure against accident and disease. With the increase of experience as to the incidence of tuberculosis upo the labouring population and of the payments necessitated in consequence the German insurance companies realised that it was worth while to try the experiment of providing sanatoriums for the treatment of pulmonary tuberculosis, and the result of the experiment has been to show, in some cases, the financial gain accruing from the measure. The conditions prevailing in this country are sufficiently similar to those on the continent to render the same proceeding reasonable here. It was stated by a speaker at the recent meeting of the British Medical Association that whereas Germany with a population only one-fourth greater than ours possesses 72 such institutions with 6000 beds, through which there pass yearly from 18,000 to 20,000 patients, there are but 12 or 13 sanatoriums in this country with a total accommodation for from 600 to 700 persons, leaving us with a truly immense leeway to make up if we decide entirely to imitate German example. But we ought to consider the whole question very closely before deciding that in the multiplication of sanatoriums we have the secret of safety. A circular letter has been issued by the National Committee for the Establishment of Sanatoria for Workers suffering from Consumption and signed by H.R.H. the Princess CHRISTIAN, appealing to the public for the sum of £50,000 to found a sanatorium for the treatment of poor tuberculous subjects. The money will probably be forthcoming. The great friendly societies, which lose so much by the claims upon them of their tuberculous adherents, are sure to support the movement. They cannot themselves establish the sanatorium in their own interest because according to the laws governing such societies in this country they cannot use their funds to build a sanatorium, but they can contribute to its support when it is built and they have undertaken to do so. Similar support is promised by some of the great trade unions, so that the maintenance of the new institution is assured without the need for further charitable support. If the experiment proves to be financially successful then there will be strong grounds for applying to Parliament to alter the law affecting friendly societies so that they may be enabled

[1] THE LANCET, April 29th (p. 1164), May 6th (p. 1232), and July 9th (p. 113) and 22nd (p. 250), 1905.

to spend their funds on the actual erection of other such sanatoriums as well as for the treatment of their members in them.

The present project is intended to be the beginning of a large movement, it being hoped that before long it may be possible to secure for a considerable proportion at least of early cases of tuberculosis among our labouring classes a period of treatment under the best conditions. But it must be remembered that the erection of sanatoriums is not thought by anyone to be the last word that can be said in the treatment of tuberculosis. They are frankly stop-gaps—they supply the hygienic environment which all medical men desire to see in the working man's home as a matter of course. And viewed in this way they represent a reasonable effort which all medical men must support, premising that there is no need for such sanatoriums to be built upon expensive lines and no economical justification for their unlimited multiplication, to the neglect of other factors in the prevention of tuberculosis. It was perhaps necessary that the KING'S Sanatorium should be erected on the most elaborate scale with everything of the best in the way of building and equipment, but this institution cannot be taken as a model for all others. Simple inexpensive buildings on the so-called "chalet" system will be found in many situations quite adequate and by adopting this plan accommodation can be provided for a much greater number of patients than if more substantial buildings are demanded. The very early cases derive the chief benefit from sanatorium treatment and much care might well be spent in finding them out and persuading these patients to undergo the course. In some chronic cases, however, even when the disease is fairly advanced, it is possible, temporarily at least, to arrest it and to render the patient again, for a time, capable of earning his own living, but the return from the sanatorium to the workshop too often heralds a recrudescence of the mischief. The advanced cases are quite unsuitable for sanatoriums, though they must be dealt with if we are to prevent them from acting as foci for spreading the disease. Something can be done by instruction in the need for care in the disposal of the sputum and such instruction can be given to some extent by means of printed directions distributed to patients at our hospitals and dispensaries. There will always remain many patients who from weakness, from lack of intelligence, or from other causes, will not be adequately dealt with by such means alone. For these isolation is requisite and we might aim at the establishment of special wards in our Poor-law infirmaries or of special institutions for their maintenance. Popular attention has been attracted to the danger in these cases, but it is to be hoped that it will not be misdirected into wrong channels whereby any sort of scare may result and greater difficulty be experienced in finding suitable work for tuberculous patients after their discharge from sanatoriums. The problem of tuberculosis is a very difficult one but it must be faced as a whole if we intend to secure lasting results. All the stages of the disease must be provided for: preventive and curative measures must be duly coördinated. Only by some comprehensive scheme can the "white fiend" be kept in check but we may well be sanguine as to ultimate victory when we remember how great the decline in the death-rate from tuberculosis has been since a more general adoption among the people of hygienic habits.

Experiments on Criminals.

WE publish this week a letter from Dr. PRESTON KING on a subject which may not be wholly new to the majority of our readers. Dr. KING discusses the possibility of turning to account, for the purposes of physiological or toxicological experiment, the waste human material which is placed at the disposal of the community by death sentences; but before reaching this portion of his argument he returns to the question lately mooted by our correspondent "ENQUIRER" with regard to the instantaneousness of death by hanging. The controversy on this subject appears to us to derive its main interest from the fact that some persons use the term "death" in its somatic sense while others use it in its molecular sense. It is said in old books on physiology that the two can be rendered coincident by an injury of sufficient suddenness and severity, as by crushing the brain of a frog upon an anvil by a blow from a hammer, but it is perfectly well known to most people that they are not coincident as a rule. Besides the case of the frog's heart mentioned by Dr. KING, it is well known that a small, warm-blooded animal may be poisoned by letting a few drops of hydrocyanic acid fall into the trap in which it is confined and may be taken out to all intents and purposes dead. It exhibits no sign of consciousness, it makes no voluntary or involuntary movements, its limbs are flaccid, it would not recover if left alone in pure air, and it is speedily deserted by its fleas and other parasites. But the action of its heart may be watched for a considerable time, the separate contractions of the auricles and ventricles being rhythmical and distinct and the arterial, venous, and capillary circulations, of course, continuing. In such a condition we have not seen any evidence of continuing respiration; and in the case of hanging it is manifest that the circulation would be arrested above the noose. Is there the slightest reason to suppose that cerebral activity and consciousness could be maintained without a continually renewed supply of arterial blood or that their maintenance would be conditioned by the state of the cord in the cervical region? We think not; and should presume that in the case of hanging any impressions transmitted through an uninjured cord to the brain would be thrown away if the brain itself were not in a state to receive and to react upon them. On these grounds we think it very unlikely that a hanged criminal is capable of sensation after the fall of the drop, even although the beating of the heart may continue for a brief period of time. In the great majority of death sentences it is probable that the period spent in the condemned cell is one of such mental suffering, suffering far greater than the pain which any bodily injury would be likely to inflict, that even if it were established that in other circumstances the shock of hanging is physically painful it would remain at least probable that the victim of justice would not be sensible of any additional agony. At any rate, there is not one among us who does not desire to believe that judicial hanging is a comparatively merciful death.

To come now to Dr. KING'S suggestion that the condemned criminal might be utilised for the purposes of physiological or therapeutical experiment, this will certainly appear startling to some modern readers, although it is by no means new in the history of mankind. It is said that HEROPHILUS, who flourished at Alexandria in the fourth century B.C. and whose name is preserved to us by the "Torcular," was accustomed to dissect living criminals, supplied to him for the purpose by the State; and some of our daily and weekly non-medical contemporaries have lately contained long accounts, more or less veracious, of a Parisian lady who is said to have secured a handsome competence by letting out her body to surgeons and physiologists for experimental purposes. In the Middle Ages criminals were certainly handed over to medical men as subjects upon whom experiments might be tried with poisons and reputed remedies. But it may be doubted whether either the customs of Alexandria in the fourth century before the Christian era, or those of the contemporaries of the BORGIAS, would be accepted as of authority in the present day; and it is certain that any attempt to obtain legal authority for carrying into practice Dr. KING'S suggestion would arouse a most reasonable storm of disapproval. We know perfectly well what many of the most sensible, well-informed, and humane men in the world will be found saying in support of experiments upon condemned criminals who, be it understood, place themselves voluntarily in the physician's or surgeon's hands in return for some slight hopes of cheating the gallows. It will be pointed out that a man condemned to death is civilly dead to all intents and purposes, save for the possible intervention of the Crown on his behalf; apart from that intervention the sheriff and his assistants are legally bound to kill the convict at a stated time and would be liable to punishment if they failed to do so. The Crown is superior to the law and may either pardon the convict or may direct that instead of being killed he shall be subjected to a long, and perhaps life-long, term of painful and degrading slavery. Dr. KING'S suggestion is that he should be permitted to ransom himself from the death penalty by voluntary submission to experiments of a kind calculated to increase knowledge with regard to the causes of disease and the operation of preventives or of remedies; or, in other words, that instead of being regarded as merely useless carrion, his body should be rendered of as much value to mankind as that of a guinea-pig or a rabbit. It might even be of considerably more value, because it would admit of a more accurate reproduction of the morbid conditions against which men have to contend. It would be necessary for the securing of perfect justice that the atonement should bear some due proportion to the offence and that the pain suffered or the risks incurred by the criminal, or the mutilations or disabilities inflicted upon him, should bear some proportion to what he himself had done to others. This point having been attended to—though what legal machinery could be devised for the purpose we are at a loss to guess—the criminal might be asked, in return for possible safety, to submit to dangers to which some of the noblest of mankind have submitted themselves with no hope of reward. Nothing more would be asked of him than was done by the American soldiers who, in full confidence in their medical officers, consented to sleep in the beds and bedding vacated by the deceased victims of yellow fever, or permitted themselves to be bitten by infected specimens of *stegomyia* in order to afford conclusive evidence of the manner in which the disease was conveyed. A criminal who was repentant would even be likely, apart from any question of pardon or of reprieve, to embrace, as these brave men did, an opportunity of rendering signal service to mankind; and the ordinary criminal, who is only repentant in the presence of the chaplain, would, as a rule, be only too willing to follow their example because of the slender chance that it offered of saving his life.

We do not think that on the part of the criminal population there would be any hesitation to avail themselves of such a provision of the law as Dr. KING suggests, so that the outcry that would follow in "humanitarian" circles upon any support of Dr. KING'S ideas would probably be directed against the cruelty of a scheme which the sufferers under the scheme would not themselves call cruel. We have, as we have said, broached the question purely as an academic one, but if it should ever become a practical one we should, for once at all events, find ourselves ranged on the side of the professional "humanitarians" as well as of most thoughtful citizens. The sanctity of human life is more recognised to-day than it was in the times of HEROPHILUS, while the respectful treatment of the bodily structure is more intimately a part of the natural religion of all men. Because life is sacred those who have deprived others of life pay the corresponding forfeit—the law is designed to be preventive and deterrent rather than purely punitive. To give the convicted murderer another chance by inviting him to undergo scientific experiment would be to remove a safeguard with which society cannot yet dispense; to practise deliberate mutilation upon the human body would be utterly repugnant to those whose official duty it would become, under a legalisation of Dr. KING'S views, to mete out to the convicted criminal his physiological or pathological sentence.

A Story of Sanitary Ineptitude.

MUCH eloquence by many writers has been expended upon the sanitary progress of the Victorian era, so much that the numerous instances of sanitary neglect with which the annals of public health administration abound, which continued throughout the reign of Queen VICTORIA and which flourish still, hardly meet with the attention that they merit. Instances of sanitary default tend to come before the public notice when there takes place what may be termed a frontier nuisance, in which two adjoining local authorities, each anxious to attribute the blame to the other and each equally anxious to avoid any expenditure in connexion with the matter, indulge in an exchange of courtesies. It is then that we learn in what manner certain local authorities interpret and neglect their responsibilities as well as how very difficult it is under the present Public Health Act to deal with situations which may constitute a disgrace to local government.

The latest example of what must be called a travesty of local government comes to us from Brecon in the principality of Wales, where, apparently, one urban district council, that of Brynmawr, has been accused of poisoning

by leakage from its main outfall sewer the springs which supply certain villages in an adjoining rural district, that of Crickhowell, with drinking water. The circumstance has led to paragraphs with alarming headings in the local press, from which, together with certain Local Government Board reports which are in our library, the facts appear to be as follows. The Brynmawr urban district council conducts its sewage to a spot in its own district where some preliminary treatment, such as screening, is undertaken, and where, too, there seems to be a device by means of which, in certain circumstances, the sewage may be diverted to a neighbouring stream. But as a rule the sewage is carried from these works by a sewer which passes through part of the Crickhowell rural district and thence to the sewage farm which is situated in the Brynmawr district. This sewer, as it traverses the Crickhowell district, skirts the edge of a decline which runs down to the small village of Llanelly, and when this sewer leaks, as it has on many occasions done, the sewage trickles through the porous limestone in which the pipes are laid and so, it is alleged, finds its way to a group of springs which, issuing from the limestone below, supply the village of Llanelly with water—and, according to Mr. P. E. HILL, the medical officer of health of Crickhowell, with enteric fever. In order to remedy this state of affairs the Crickhowell rural district council has invoked the assistance of the Local Government Board and within recent years that of the Brecon county council. But to judge from a recent report by Mr. HILL the leakage above referred to still exists, for this is what he writes:—

"Typhoid fever has been endemic amongst the population of Llanelly (Breconshire) for over 30 years and an epidemic is still in progress, as demonstrated by the fact that 14 cases have been notified during the present year, 11 out of this number since June 28th. A water poisoned by typhoid bacilli has been allowed to flow as from a fountain during the whole of this period from time to time and has been the direct source of disease, suffering, and death to hundreds."

This is a strong and direct accusation and by way of estimating its weight we have consulted a joint report written by Dr. R. J. REECE and Mr. SANDFORD FAWCETT, M.I.C.E., two inspectors of the Local Government Board, which was issued in 1902.[1] From this report we gather that the facts are to a certain extent as stated and that the sewer in question does frequently leak in such fashion as seriously to threaten the water of the Llanelly springs. But we also incidentally learn that the Crickhowell rural district council is very far from being an ideal body from an administrative standpoint; that the village of Llanelly is, on its own merits, a somewhat unwholesome spot; and that the springs which are stated to be polluted by the Brynmawr sewage are also liable to pollution by the contents of the Llanelly privies. There is no system of drainage in the village and the "slop water is thrown on the ground or down drains of primitive construction to find its way with the storm water over the land or by channels furrowed along the roadside to ultimately reach the Clydach brook." There is no isolation accommodation in the district and the disinfection performed at the time of the inspection, which led to Dr. REECE'S and his colleague's report, was little other than a farce.

[1] The report can be obtained from Messrs. Eyre and Spottiswoode, East Harding-street, London, E.C.

So far, therefore, as we can gather there is still much for both the authorities in question to carry out before they waste their time in discussing the responsibility for an admittedly serious condition of affairs. Clearly, it is the elementary duty of the Brynmawr council to provide a watertight sewer, and it is equally the duty of the Crickhowell council to see that Llanelly is provided with a water-supply which is not liable to pollution by, amongst other things, the contents of its own privies. But in place of performing these elementary acts of justice to the people over the health of whom they have been elected to preside each district council would appear to be procrastinating indefinitely. For ourselves we should like to see both these authorities vigorously dealt with. The efforts of the medical officers should be seconded at headquarters, and if reform does not follow the districts, if possible, might be dissolved. A perpetuation of this unedifying bickering and ineptitude is not fair to local government. Dr. REECE'S and Mr. FAWCETT'S report is instructive in many ways and its broad lesson is that if recurrences of this nature are to be avoided a new Public Health Act should be introduced conferring greater powers upon the Local Government Board and upon county councils, enabling them to deal in a summary fashion with authorities which neglect the health of the public under their care. Apparently the Brynmawr and Crickhowell districts have been visited on numerous occasions by inspectors of the Local Government Board and in each instance advice has been given which, if followed, would have led to a speedy remedy of a nuisance which has been obvious for many years. Neither of these councils can therefore plead that advice has not been forthcoming and it is only matter for regret that the central health authority is not able at this stage to enforce the carrying out of the recommendations so frequently made by its own inspectors. We venture to commend this case to Mr. GERALD BALFOUR whose undoubted ability should prove equal to the occasion.

Annotations.

"Ne quid nimis."

THE DIFFICULTIES OF MEDICAL MEN IN RELATION TO CASES OF DIPHTHERIA.

IN THE LANCET of Sept. 23rd, p. 907, we drew attention, under the title of "How Disease May be Spread," to the difficulty which is liable to attend the diagnosis of diphtheria in cases where a medical man is consulted when the clinical signs of the disease have disappeared and when the patient or the patient's friends either by silence or positive misstatements throw dust in the eyes of the practitioner. Curiously enough, a correspondent sends us this week the particulars of a case the circumstances of which are very similar to those to which we referred in our issue of Sept. 23rd and as the facts are of interest to all practitioners we summarise them for the benefit of our readers. A notifies that a child is suffering from diphtheria, the diagnosis being founded upon satisfactory clinical and bacteriological evidence. The parents are duly informed by A who urges isolation which he suggests may probably have to be continued for about a month. The local medical officer of health visits the house and, supporting in every way

this medical practitioner, orders isolation. But the father of the child finding it convenient to doubt the diagnosis partly on account of the expense of prolonged isolation and partly in consequence of interference with the holiday arrangements, ceases to call in A, and consults B and C independently, both of whom see the child when the membrane and other clinical signs of diphtheria have presumably disappeared. Without any attempt at bacteriological examination the child is pronounced by them not to be suffering from diphtheria and, consequently, in a fortnight from the onset of the illness the father, so far as we can gather from our correspondent's communication, takes the child home by train, where the medical officer of health, who it is to be assumed has been informed of the circumstances, makes an independent examination and finds that a swab taken from the throat yields a positive result *qua* diphtheria. Having regard to the recent successful prosecution in the North London police-court to which we referred in our issue of Sept. 23rd our correspondent asks whether the urban district council and the railway company concerned ought to prosecute and, if so, whether a conviction would be probable, and finally, whether if the district council declines to prosecute the Local Government Board is likely to compel it to do so. In our view much depends upon what was the attitude of the child's father towards B and C. Did he inform them of the previous notification or of the results of the bacteriological examination? If he suppressed both these facts we are inclined to think that it might go badly with him in a court of law. If, on the other hand, he apprised B and C of all the circumstances B and C themselves would seem to us to have failed somewhat in their duty alike to the patient, the public, and to A in not procuring a bacteriological examination. At the same time it is an open question whether the law would regard it as incumbent upon a practitioner to secure such an examination; indeed, in the case of persons too poor to pay for it or when there was no provision made by the local authorities for such examination it would obviously be impracticable. But this fact hardly absolves B and C from their moral responsibilities in this case. In our own view, no medical man in face of the facts was in a position to assert that the child was not suffering from diphtheria without a bacteriological examination. But we are not quite clear from our correspondent's letter whether when the second medical officer of health made a bacteriological examination of the throat with a positive result there were also clinical signs of diphtheria. It is, of course, conceivable that in the interval between the first and second bacteriological examination the throat may have been for a time free from the organism of the disease and the defence would probably develop this point. But as regards the chances of a successful prosecution we think all depends upon the father's attitude towards B and C and we doubt whether the Local Government Board would regard the case as one in which it could usefully intervene.

SIGHT TESTING.

WE have received from the secretary of the British Optical Association a copy of a Bill which the association proposes "to present to Parliament" next year and which, if it ever became law, would establish a recognised profession of "sight testers" presided over by a body formed on the lines of the General Medical Council and, like the Council, having some control over the education and qualifications of the new licentiates and some power of withdrawing licences in case of misconduct. The Bill is avowedly framed as a counter move to one proposed by the British Medical Association and described as containing a clause which provides that "testing the sight for spectacles must not be practised by any person but a qualified medical man." We have no sympathy with either proposal because the suggested prohibition could not possibly be carried out in practice. The spectacle seller would deny that he was "testing sight" and would hand the customer any common optometer and would tell him "to test" himself. We have so often dealt with the dangers which would attend upon giving any appearance of "qualification" to spectacle sellers that we need hardly now repeat ourselves upon the subject. There are many shoals and quicksands in Parliament and sufficient unto the day is the evil thereof. If the crazy scheme appeared at any time to be in danger of realisation we should, of course, be bound to show cause against it and to ask Parliament seriously to consider the consequences likely to follow from the course proposed. In the meantime nothing can be better for the promoters than a little wholesome neglect. The Bill of the British Medical Association has not yet become law and there is therefore no immediate prospect that an "enormous number" of "fully qualified (?) and certificated opticians" will be deprived of their livelihood before the advent of winter. While waiting for the session of 1906 they may take comfort in the thought that public attention is being seriously directed towards the misfortunes of the unemployed.

STRANGLED BY RED TAPE.

ONE of our Scottish correspondents informs us of an unpleasant incident which has occurred at Burntisland in connexion with the fifty-fifth section of the Licensing Act, 1903, the particulars of which have just come to light. On a Sunday evening recently a medical man advised the parents of an infant that a mixture of brandy and water should be administered, the condition of the patient being considered precarious. The practitioner wrote out a certificate to procure some brandy and addressed the letter to a licence-holder in the town. The father of the child requested that the immediate attention of the licence-holder should be given to the order as the matter was urgent but in view of the strictness of the law the latter went to the police-office to obtain the consent or assent of the police-sergeant to the order. The latter declined to give the sanction on the ground that the certificate would require to be signed by the medical officer of health, as he could not recognise the medical man's signature as sufficient. It was found, however, that the medical officer of the burgh was not at home and the sergeant was again asked, in view of the urgency of the case, to grant his consent to the order, but he declined and asked the parties to obtain the signature of the procurator-fiscal. This was in the end obtained and the brandy was procured after one and a half hours had elapsed. The child died two hours afterwards. The cause of death might not inappropriately be described as "strangled by red tape."

HERB CALOMEL.

FROM an account which appeared in the *Morning Post* on Sept. 23rd it would seem that some remarkable statements were made last week at Hanley county court, when a wholesale druggist named George Rowley, trading as James and Co., sought to obtain an injunction against Cecil Price who, it was stated, imitated Rowley's labels on his boxes. The labels alleged to have been copied bore the inscription "Dr. Astbury's pure herbal pills, worth their weight in gold; price two and nine per box." His honour Judge Mulholland elicited from the plaintiff that there never was a Dr. Astbury, that the pills were made in London, and that the leading ingredients were soft soap and calomel. Thereupon Judge Mulholland seems to have taken a very definite line. He said that it seemed to him that the plaintiff's description

of his pills was a fraud and that what he claimed copyright in was the originality of the lie. Every word on his label was untrue. The statement that they were worth their weight in gold was mere puffery; it was untrue that they were made from the recipe of a Dr. Astbury; it was untrue that the pills were herbal. The plaintiff had tried to defraud the public by getting them to pay 2*s.* 9*d.* for pills which an ordinary druggist would make up for 6*d.*, and now he wanted an injunction and damages because the defendant was preventing him from having a monopoly. He should refuse to assist him in any shape or form. We highly commend Judge Mulholland's view that a man who calls a calomel pill a herbal preparation, who pretends that his pill is made from a medical recipe, and who retails it at a profit of several hundred per cent. is defrauding the public. As far as the purse of the public goes we are not very sympathetic. The opportunities of obtaining medical advice at a moderate figure are very numerous in all parts of the country, so that the public preference for wasting its money upon quackery is mere wantonness. But the questions of health involved are of more importance. Calomel is a mineral poison and serious results may follow upon its habitual use even in small doses. The proprietor of "Dr. Astbury's pure herbal pills" probably knew of the reasonable prejudice that exists against the constant use of mercury and so went out of his way to pretend that the ingredients of his nostrum were unmixedly vegetable. He must now wish that he had sat down under Mr. Price's alleged infringement, for the revelations that he was compelled to make in Judge Mulholland's court must damage his reputation with all but the most hardened supporters of quackery.

BREECH PRESENTATIONS.

THE occurrence of a pelvic presentation in a primipara is always a matter for some anxiety on the part of the medical attendant. A correspondent, Dr. R. E. Roberts, calls our attention to the frequency with which in such cases the additional complication of extension of the legs occurs in the case of primiparæ. From the figures given in the St. Thomas's Hospital Reports for 1901 he calculates that impaction due to extended legs is found in breech presentations in 61 per cent. of primiparæ, while the same complication only occurs in 8 per cent. of multiparæ. In a paper on the subject[1] Dr. W. S. A. Griffith and Dr. A. W. W. Lea found that extended legs occurred in 11 out of 22, or 50 per cent., of the cases of pelvic presentations at Queen Charlotte's Hospital. Out of a total of 57 such cases recorded by various writers, 40, or 70 per cent., of the cases were in primiparæ, an even larger percentage than that found by our correspondent. The diagnosis of this complication of labour is nearly always possible by a careful abdominal examination. As Budin has pointed out, when the legs are extended the breech descends into the pelvic brim before the onset of labour, while this is not the case in so-called complete pelvic presentations where the feet and buttocks present together. As a result, a true accommodation of the uterus to the fœtal ovoid takes place, the breech with extended legs being smaller than the cephalic extremity of the child. In such a case abdominal palpation shows that one extremity of the child is lying deeply engaged in the pelvic brim and that this portion of the fœtus is bulky, not so rounded as the head, more irregular in shape, and the groove of the neck is not recognisable, the mass in the pelvis passing directly into the back of the child. Occasionally a foot or leg can be detected lying by the side of the head at the fundus of the uterus. Valuable assistance in the diagnosis is at times given by auscultation. When the legs are extended and the pelvic pole of the child is engaged deeply in the pelvic brim the fœtal heart is usually heard below the level of the umbilicus and very often in the middle line. Dr. Roberts calls attention to a diagnostic point which he has found of assistance in vaginal examination—namely, the fact that there is increased convexity of the lower dorsal, lumbar, and sacral spines, bringing them within easy reach of the examining finger. No doubt in cases where the membranes are ruptured and the cervix is sufficiently dilated this sign will prove of value, but when the patient is seen in the early stages of labour a careful abdominal examination should lead to a correct diagnosis. We hardly think that Dr. Roberts is right in his statement that the sooner the extended legs are brought down the better, as a great many of these cases are delivered spontaneously. This was the case in 10 of the 17 cases recorded by Dr. Griffith and Dr. Lea. These authors considered that the prognosis to the child was not worse than in breech presentations generally, but this was by no means the opinion of most of the speakers who took part in the discussion following the paper, nor does our experience lead us to think that such a conclusion is a correct one. The question as to whether the extension of the legs is primary—namely, has been present before the onset of labour—or secondary and has occurred during labour, is by no means easy to settle, nor do we know for certain what causes lead to such an extension of the legs in utero. Probably it is caused like so many other anomalies of the fœtus by intra-uterine pressure. In cases which require artificial interference bringing down one leg or the use of the soft fillet will usually prove efficient in overcoming the obstruction to the progress of the labour.

[1] Transactions of the Obstetrical Society of London, vol. xxxix., 1897.

STREET NOISES.

THE turmoil of a modern city is almost incessant. Although at night, of course, the traffic ceases to a great extent, yet even in the hours supposed to be devoted to rest of mind and body quiet never reigns. It would be no exaggeration to state that noise is one of the greatest curses of town life at the present time. Some of the street noises which are such potent factors in rendering the town-dweller, and especially the brain-worker, neurasthenic and unfit for long continued effort, are more or less unavoidable, while other noises are wholly unnecessary. At any rate, noises at night should be prevented as far as is possible for the sake, at least, of those who may be suffering from maladies the successful treatment of which largely depends on quietude. A letter was sent by Mr. W. Pugin Thornton to the *Birmingham Daily Post* of Sept. 18th which well illustrates the force of the above remarks. Mr. Thornton was at the time when he wrote the letter a patient in a private hospital situated in Newhall-street, Birmingham, where he had undergone an abdominal operation. The communication in question was in reference to a letter which Mr. Thornton had previously written to the Lord Mayor of Birmingham asking if the quarter-hours of the town clock could not be stopped every day from 10 P.M. to 8 A.M. and the hours muffled to half tone as the peculiar and ear-splitting stridency of its notes greatly disturbed the writer at night. The answer to this request was not favourable, the refusal to interfere with the working of the clock being made on the grounds that "the clock is a public one and its consistent working is of the first importance to the inhabitants of the city." Mr. Thornton holds, and with his view of the situation we cannot but agree, that both from a humanitarian and business standpoint the decision come to by the Lord Mayor of Birmingham is a wrong one. So far as the humanitarian side of the question is concerned no argument is needed. A clock which clangs noisily at quarter-hour intervals throughout the

night must be a serious drawback to recovery of those sick within hearing of its sounds. As to the business aspect of the case, it is by no means obvious that "the consistent working of the clock is of the first importance to the inhabitants of the city." If it be granted that much business is done in Birmingham during the night it does not follow that a loud chiming clock is necessary to the proper performance of such work. A great deal of the din which prevails in large towns by day and by night is intolerable and avoidable. We remember to have received from a correspondent in the United States an appalling account of the pandemonium of sounds which tends to destroy much of the pleasure of life in such cities as New York, Chicago, and Buffalo. Medical men in America have inveighed in the strongest terms against the street noises of their large cities and declare that these are chiefly responsible for the existence of the nervous, dyspeptic American so often seen. Noise in general is a bane of modern existence and a fruitful cause of sickness.

CHILD STUDY.

A SERIES of lectures and discussions has been arranged by the Childhood Society and the British Child Study Association, to be held in the Parkes Museum, Margaret-street, London, W., on Thursdays, from Oct. 19th to Dec. 14th inclusive. The meetings will be held at 8 P.M., except on Nov. 30th, when the time will be 8.15 P.M. Among the subjects to be discussed are—The Causes of Physical, Mental, and Moral Degeneration; the Speech Training of Feeble-minded Children; the Physiology of Child Life; and the Training of Teachers for the Care of the Feeble-minded. Members and associates of the two societies will, on signing their names, be admitted free but others wishing to attend the lectures can do so by payment of 2*s.* 6*d.* for the course or of 6*d.* for a single lecture.

POISONING DUE TO INHALATION OF THE FUMES OF NITRIC ACID.

AT the recent meeting of the American Medical Association Dr. J. N. Hall and Dr. C. E. Cooper reported a series of 20 cases of poisoning due to an unusual cause—inhalation of the fumes of nitric acid. The patients were firemen who were engaged in putting out a conflagration due to the breakage of a carboy of nitric acid. The acid was soaked up with sawdust which became rapidly oxidised and burst into flames in many places. When the firemen were summoned they found a thick irritating smoke, evidently due to a combination of the acid fumes with the smoke of the burning sawdust. The acid was very concentrated, over 38 per cent. in strength, and contained little nitrous acid and no sulphur impurities. The men were overcome much more rapidly than by ordinary smoke and experienced an intense feeling of irritation of the respiratory passages on approaching the flames and also on recovering from the collapse produced by the exposure. They were immediately taken to hospital but they thought no more of their condition than if they had been overcome by ordinary smoke, which was a common experience. After a few hours they all asked for permission to go home, which was granted. But without exception they were taken back to hospital within from six to 24 hours because of severe irritation of the mucous membrane of the respiratory passages and symptoms of intense congestion of the lungs. After readmission they all suffered from vomiting and collapse and complained of sharp pains on breathing and difficulty of respiration. These pains were found to be pleuritic and were accompanied by pleural friction sounds. The signs of congestion of the lungs were followed by those of areas of consolidation here and there. This broncho-pneumonia ran a slow course and was accompanied by prostration. The general symptoms did not differ from those observed after the inhalation of chlorine or other irritating gases. Four of the cases proved fatal—one not long after the accident and three others towards the end of a month after it. In the latter three cases the patients apparently recovered from the broncho-pneumonia and then had a fatal relapse. The necropsies showed the existence of broncho-pneumonia. The treatment adopted consisted in stimulation, the administration of oxygen when indicated, the giving of atropine for the œdematous infiltration of the lungs, and vigorous counter-irritation.

THE ANT AND FORMIC ACID.

FORMIC acid, which, as stated in THE LANCET of Sept. 23rd, has been successfully exhibited in the treatment of tremors, has long been employed on the continent as a stimulant in cases of gout and paralysis. The acid was obtained originally from the *formica rubra*, or red ant, and a common method of administering it was at one time by means of the "ant-bath." This last was obtained by boiling crushed ants or whole ant-hills, to the steam of which the diseased limb was exposed. How far this treatment was based on reason or on signaturist tradition it is impossible to infer. Mediæval or savage pharmaceutists seem to have argued that because the ant is the strongest of insects and can carry weights some 10 or 12 times as heavy as itself a medicine derived from it must of necessity impart muscular force to those taking a dose of it. Arguing on these lines the French *Figaro* published a year or two ago a long and ingenious article in which no trace of *persiflage* was discoverable and where it was demonstrated that if human beings were only to dose themselves with sufficient quantities of formic acid they would soon resemble the ants in prodigious feats of strength and endurance. Two French medical men were reported to have experimented on themselves with the results in the way of ant-like prowess that fairly beggared description. An "elixir" sold in bottles was the "practical" outcome of these investigations. It is probably selling in France to-day. The writer in the *Figaro* was so carried away by his theme that he foretold the complete revolution of industry and all social relations in a world where whosoever desired might be ten times stronger than his neighbour. Work, of course, would become the merest bagatelle and vast longevity would follow in the train of reduced muscular output. It was an idea worthy of Mr. Wells.

SCHOOL CHILDREN UNDER FIVE YEARS OF AGE.

THE Board of Education is at length awake to the fact that it has to deal with human beings and not with machines. Accordingly, from April 1st, 1904, it has been holding an inquiry relative to the admission of infants to public elementary schools. Five women inspectors were appointed to hold an inquiry and their inquiry extended over nearly 12 months. The results have now been issued as a blue-book. In an introductory memorandum by the chief inspector of public elementary schools it is stated that the inspectors agree that mechanical teaching in many infants schools seems to dull rather than to awaken the little power of imagination and independent observation which these infants possess. Many of the inspectors say that there is much too much rigidity, and one in particular, Miss Harrington remarks that the syllabus imposed by the education council of the district is cast iron. The Board of Education and the council inspectors look for nothing but results and in a certain school a council inspector remarked that "the discipline would have been perfect but for two or three babies, who moved." Like the hero of Gilbert's *H.M.S. Pinafor*

this inspector "might have been a Prooshian," for his ideas of discipline would certainly have endeared him to Frederick the Great. Any baby who keeps still except when asleep is almost certain to be ill. The report contains a mass of information upon which we may comment further in a future issue but now that the Board of Education has inquired into the matter there is hope that the idiotic restrictions for which we believe we have to thank the late London School Board will be modified

RESUSCITATION BY MANIPULATION OF THE HEART.

IN the *New York Medical Journal* of Sept. 2nd Dr. W. S. Conkling has reported a remarkable case of resuscitation by manipulation of the heart. An Italian coal miner, aged 47 years, was admitted into hospital on June 21st, 1905, about 9 P.M., suffering from a wound of the chest inflicted with a knife or razor. He had lost much blood and was suffering from severe shock. A hypodermic injection of a pint of saline solution was given and after 30 minutes he appeared to be stronger. On removing the dressings which had been applied before admission a wound was found which commenced at the junction of the middle and outer third of the left clavicle and extended downwards and to the right, terminating about three inches above the right nipple. The pectoralis major and minor muscles and the other soft tissues were severed for the entire length of the wound. The left second, third, and fourth costal cartilages were divided. During respiration a large part of the left lung protruded outside the chest. A small amount of ether was given, not enough to produce complete anæsthesia. The pectoralis major and minor muscles were sutured with catgut. The upper and lower portions of the wound were sutured with silkworm gut and the third rib was sutured with kangaroo tendon. It was then noticed that the pulse was almost imperceptible. Stimulants were injected and artificial respiration was performed without benefit. Soon the pulse disappeared. With the object of ascertaining whether the patient was dead Dr. Conkling passed his finger into the wound and through a small opening in the pericardium and felt a perfectly still heart. Then he remembered that it had been recommended to cut down on the heart and to compress it in cases of sudden death from shock. He seized the heart between his thumb and forefinger and manipulated it for a period of from 40 to 60 seconds, when he felt it thrill. Then he released it and waited for a few seconds for further action. The nurse announced that she could detect a slight pulse which gradually gained strength. The opening in the thoracic cavity was quickly packed with gauze, a dressing was applied, the patient was put to bed, stimulants were given, and saline solution was injected into the rectum. During the night the patient remained weak but on the following morning his condition was fair. Recovery followed. It was difficult to estimate accurately the time which elapsed from the cessation of the heart's action to the commencement of manipulation but those present at the operation believed the interval to be at least two minutes. It may be remembered that Mr. H. M. W. Gray recently recorded in our columns[1] a case of cyanosis due to laryngeal obstruction from cancer in which he hurriedly performed tracheotomy with a penknife. The heart ceased to beat and he opened the abdomen with the penknife, inserted two fingers, and palpated through the diaphragm an absolutely flaccid heart. He performed rhythmical compression of the organ and after four minutes it began to beat. The circulation and respiration were restored but the patient never recovered consciousness and died after two hours. Mr. Gray also referred to another case in which while removing an ovarian cystoma the heart stopped and by this method he resuscitated the patient who recovered. Compression of the heart through the diaphragm was first successfully employed by Mr. W. Arbuthnot Lane in a case of removal of the vermiform appendix.[2] In commenting on the case we said that if during laparotomy the heart stops manual compression through the diaphragm should always be performed.[3] Another method is to expose the heart, either by resecting the ribs or incising the diaphragm, and then to perform manual compression. But so far as we know this method, which we fully discussed,[4] has never given more than a temporary success. However, Dr. Conkling's case may be regarded as a complete success in analogous circumstances, the difference being that the opening of the chest was part of the injury which caused the arrest of the circulation and not an operation which had to be performed after the arrest.

[1] THE LANCET, August 19th, 1905, p. 506.

CONFESSIONS OBTAINED FROM DRUGGED PERSONS.

AMONG the doubtful instruments of evidence which may be adduced in forensic proceedings are the statements made by a person *non compos mentis* owing to intoxication by a drug at the time when the statements were made. In Indian criminal jurisprudence the practice of giving a man a hookah to smoke before questioning him is historical and recently in the State of Illinois, in the case of Burnett *v.* The People, a similar point was under discussion. A man who was said to have taken three grains of morphine was found stupefied and while under the supervision of medical men he sank into a state of coma; he was aroused sufficiently to give replies to a series of leading questions. As the result of this testimony the defendant was found guilty but upon appeal experts were called and they affirmed that any replies so obtained were untrustworthy and might be no more than the product of mental suggestion leading to statements which were neither voluntary nor responsible; the defendant's conviction was accordingly quashed. In 1835, when a constable gave a man alcoholic drink before extracting a confession from him, Mr. Justice Coleridge admitted that drunken lips in law were competent to offer evidence and to make a confession, though, as a matter of fact, it was open to discussion as to whether they were capable of so doing; thus a restriction was placed upon the application of the trite aphorism *in vino veritas*. It may be urged that a man under the influence of a drug cannot appreciate the nature of an oath and hence cannot give evidence nor can he observe correctly facts which occur in his presence while his intoxication persists.

THE BAROMETER AND ANÆSTHETICS.

OUR attention has been recently drawn by a letter from Mr. A. H. Brewer to the question of the effect of the weather on the results of administration of nitrous oxide gas. Our correspondent does not cast any doubt upon the generally accepted opinion that a high barometric pressure is favourable and a low one unfavourable to anæsthesia from laughing gas but he puts a different interpretation upon the results observed. According to Mr. Brewer's view, the happy effect of a high barometer is simply due to the enhanced general condition of the patient. He does not attribute the good anæsthesia to any altered physical conditions of absorption and elimination of the inspired anæsthetic but merely to a good bodily and mental condition of the patient such as is known to favour successful inhalation of all anæsthetics and such as, according to Mr. Brewer, prevails much more often when the barometer is high than when it is low. We believe that there

[2] THE LANCET, Nov. 22nd, 1902, p. 1397.
[3] THE LANCET, Nov. 29th, 1902, p. 1476.
[4] Loc. cit.

is some truth both in Mr. Brewer's contention and also in the claim for superior physical conditions with high barometric pressure. At the same time we are of opinion, after careful reading of the papers upon the subject that have been read during the last two years before the Odontological Society and the British Dental Association, that too much stress may be laid upon the weather. We do not consider that, except in the rarest instances, barometric pressure is an item of such importance that it should weigh against other indications in deciding an anæsthetist's mode of procedure; indeed, and we should think but poorly of an administrator who, other conditions being favourable, failed to secure a good nitrous oxide anæsthesia, even though it was "raining cats and dogs," with the barometer at 28 inches.

THE SOURCE AND CONSTITUENTS OF CHAULMOOGRA OIL AND HYDNOCARPUS OIL.

THE pharmacology of chaulmoogra oil was recently referred to in a correspondence in the columns of THE LANCET,[1] where it was pointed out that there was some doubt as to the source and active principle of the oil as used in this country. Researches by Dr. F. B. Power and Mr. M. Barrowcliff[2] (of a later date than any referred to by our correspondents) have thrown considerable light on the subject. In an earlier communication Dr. Power and Mr. F. H. Gornall showed that the oil obtained from authentic seeds of *Taraktogenos Kurzii* is identical in its physical and chemical properties with the chaulmoogra oil of commerce. It consists chiefly of the glyceryl esters of members of a homologous series of a new type, one of which was isolated and designated chaulmoogric acid. Dr. Power and Mr. Barrowcliff now prove that the oil which has long been known in Europe as chaulmoogra oil or gynocardia oil has never been obtained, as hitherto believed, from the seeds of *Gynocardia odorata*. Chaulmoogra oil, as met with in this country, is solid at ordinary temperatures, whereas the oil from the seeds of *Gynocardia odorata* is a liquid. Furthermore, chaulmoogra oil is optically active and consists chiefly of the glyceryl esters of members of the chaulmoogric acid series, whereas the oil from gynocardia seeds is optically inactive and contains neither chaulmoogric acid nor its homologues. Gynocardia seeds contain, in addition to the fatty oil, 5 per cent. of a crystalline glucoside, gynocardin, and a hydrolytic enzyme, gynocardase. The oil itself consists of linolic acid or isomerides of the same series, constituting the largest proportion of the oil; palmitic acid, in considerable amount; linolenic and isolinolenic acids, and a small quantity of oleic acid. The fatty oil from two species of *Hydnocarpus* belonging to the same natural order as *Taraktogenos* has long been used in western India and in China for the same medicinal purposes for which chaulmoogra oil is employed. *Hydnocarpus wightiana* (Blume) is a tree indigenous to the western peninsula of India and yields an oil which has been used as a substitute for chaulmoogra oil in the Bombay Presidency with satisfactory results. *Hydnocarpus anthelmintiana* (Pierre) is a tree indigenous to Siam, the seeds of which are exported to China under the name "lukrabo" and are known in the latter country as "ta-fung-tsze." Dr. Power and Mr. Barrowcliff have examined the oils from these two species of *Hydnocarpus* and have found them to bear a close resemblance to chaulmoogra oil in their physical characters and chemical composition. The acids obtained from the hydnocarpus oils consist chiefly of chaulmoogric acid and a lower homologue of the same series, the latter having been isolated also from chaulmoogra oil. This new acid has been designated hydnocarpic acid. The chemical properties of chaulmoogric and allied oils have now been fully investigated and the way is paved for a pharmacological examination of these oils and their constituents.

[1] THE LANCET, August 19th, 1905, p. 570.
[2] Journal of the Chemical Society, June, 1905, pp. 894-900.

THE EARTHQUAKES IN CALABRIA.

"WHAT was dreaded has happened," writes an Italian correspondent. "The autumnal rainfall, as copious as it is continuous in the second half of September throughout Southern Italy, has come to aggravate the sufferings of earthquake-visited Calabria. The population, even when accommodated under the hastily constructed shelter of canvas tents and wooden shanties, has been deprived of this partial protection; thanks to the torrential downpour, reinforced in some quarters by wind rising to a gale, it has seen its frail tenements either reduced to pulp or swept clean away, and it is now no better off than the majority of its number who still bivouac in the open. Food and clothing are thus in most cases the only means available for maintaining the struggle for existence, until the relief operations, often enough carried out with more zeal than discretion, make good the damage and the loss which wind and rain have added to earthquake. The situation is in the last degree deplorable and its difficulties are already evoking recrimination between this or that contingent, official or amateur, of the relief force. Even when these are working in comparative harmony they have still some fault to find and they now complain of the population itself as listless, apathetic, and idle, lending no coöperating hand to their benefactors even in the work of tenement construction, much less in that of removing and cremating the dead. Such censure, however, is made in ignorance of the peculiar psychological effects induced by visitations like those of earthquakes—the survivors of which are for long periods thereafter the prey to a depression, moral and intellectual, akin to acute melancholia—the faculties benumbed, all initiative arrested, and a condition of 'pantophobia' set up, alternating between gusts of panic and the hebetude of reaction. This must be accepted in explanation of the moral atony complained of in these sorely visited Calabresi and ought to inspire the relief parties to follow up the noble example of the King with all the more energy, emulating the 'light address and the cheery stoicism' which he combines with 'present aid,' so infusing confidence for the passing day and hope for the future. Characteristically enough, it is the relief contingents from the Alta Italia—from Piedmont, Liguria, and Lombardy—that are most successful in meeting the exigencies of the situation. The virile north imparts something of its strength to the emotional and less robust south and the three committees, hailing respectively from Turin, Genoa, and Milan, by coöperating on a well-concerted and well-sustained plan are already working a 'salutary contagion' on the other contingents, particularly those from the southern provinces. 'Moral rehabilitation, following on sustenance and shelter'—such is the watchword of the three combined committees referred to, and a glance at the previous history of these Calabresi suffices to show its significance and its value. Heavily hit in their special industry by the olive grub (the musca olearia) and the phylloxera and buoyed up with 'pie-crust promises' of Government aid made by the politicians who courted them, they had oscillated between damage and disappointment till the heart had been well-nigh taken out of them for prolonging their struggle on the soil. Emigration is the resource most favoured among the more enterprising and now that the earthquake has completed their ruin they have lost all affection for the birthplace which has proved such an 'injusta noverca,' so that 'voluntary exile oversea' is almost irresistible in its attractions. The 'seismic tradition' which clings to their native soil, accentuated and intensified by recent tragic experience,

has become for them a fixed idea nay, more, an irrational and unassailable superstition and might serve of itself to explain the faint interest which they show in the work of house reconstruction. 'Of what avail is it to replace our villages by others when, at intervals of a few years and by a seismic shock lasting a few seconds, the new buildings may collapse with their inmates as tragically as the old?' To combat this feeling and to induce a sense of security in holding by their soil is the policy now engaging the best thought of their more masculine and far-seeing compatriots; and effectively aided by such combinations as the three committees referred to the Government is in close colloquy with experts, geological and architectural, for the maturing of a plan of reconstruction which will make the lives of the Calabresi as fairly exempt f om seismic disturbance as those of other Italians. Basing itself on the recognised trend of Calabrian earthquakes, on the geological composition of the soil, and on the positions thus indicated as the proper sites for dwelling-houses a 'Codice di Edilizia Seismica' (a series of formulæ for buildings adapted to earthquake-visited regions) is in preparation which proposes to obviate every risk incurred in such provinces as those recently visited. Having chosen the site furthest removed from the seismic trend—avoiding mountainous in favour of level situations—the authors of the 'Codice' lay down minute and carefully considered recommendations as to substructure, height of building, quality of stone and masonry to be observed by the architect, and strengthen these recommendations by the practice of the Japanese in guarding against similar visitations. Models specially sent from Tokio by Professor Omori are to be utilised in the new type of house architecture designed for Calabria and, the work of immediate relief and rehabilitation fulfilled, the Government will be called upon without delay to proceed to the re-housing of Calabria under conditions practically earthquake-proof. Meanwhile, Italy requires all the support and sympathy of the outer world in the task before her. Young as she is as a first-rate power, and heavy as are the drafts on her resources for internal consolidation and development, she must find the additional strain now put upon her to be all too heavy not to make assistance from without peculiarly welcome. That assistance is being freely accorded from no quarter more cordially or more amply than from Great Britain who watched over the cradle of her 'Risorgimento,' who aided her first steps in constitutional progress, and who looks on with self-congratulation at seeing her political *protégée* so loyally fulfilling the best anticipations formed of her by proving that 'Italian unity' is indeed a realisation conspicuous in the fraternal feeling now vibrating through her system from the Alps to Etna."

THE MEDICAL MAN, THE CORONER, AND THE PATHOLOGIST.

Mr. Troutbeck held recently in the Westminster court an inquest on the death of a housemaid who had been accidentally killed in the lift at the house of the Duke of Grafton in Chesterfield-gardens. She was taking down a washstand in the lift, which had no gate or door to it, when the legs of the stand, projecting beyond the lift, caught the wall of the shaft so that the piece of furniture was forced upwards under the unfortunate young woman's chin, pinning her against the side of the lift and killing her. With the coroner's observation that if the lift had had a door the washstand could not have projected and the accident would not have happened none will find fault, and it might be added that lifts in private houses, or anywhere where they are not in charge of an attendant constantly employed about them, will always be a source of danger. It is less easy to understand why Mr. Troutbeck should have thought it necessary to employ Dr. L. Freyberger to hold the necropsy and to give evidence to the effect that the death of the deceased was due to shock from fracture of the larynx. No mention is made in the reports of the inquest of any other medical man being called as a witness but it is difficult to believe that none was called in at the time who could have given the same evidence with equal certainty. As a correspondent, whose letter was published in THE LANCET of Sept. 23rd, at p. 921, justly observed, "Surely the average medical practitioner who has obtained his diploma or degree, not without a stiff examination in pathology, may be trusted as well as any specially skilled pathologist to conduct an ordinary post-mortem examination in order to establish (say, after *physical* injury) whether death was caused by the rupture of some important organ, fracture of the base, gunshot wound producing hæmorrhage and shock, strangulation, foreign body in the larynx or cut throat, and (say, after suspected natural causes) cardiac, pulmonary, hepatic, cerebral, or other internal mischief."

FAILURE TO NOTIFY A CASE OF TYPHUS FEVER.

A CASE heard at the Hetston police-court recently was mentioned in THE LANCET of Sept. 23rd, p. 929. The defendant, a Mrs. Williams, was summoned for failing to notify a case of typhus fever which she had attended as a medical practitioner. To this she pleaded guilty and the facts which were narrated by her advocate and by the prosecuting solicitor were not disputed. According to their statements the defendant had taken the degree of M.D. at Boston University and had attended her sister-in-law in an illness which, it was suggested, was due to food eaten at a picnic. The defendant failed to recognise the nature of the illness and although she suspected it to be typhus fever on the day before death took place only made up her mind upon the subject after her patient had died. She did not then notify it to the sanitary authority but signed a certificate in which she named typhus fever as the cause of death and gave certain directions for disinfecting. The medical officer of health upon having his notice called to what had occurred took the necessary sanitary precautions and the proceedings described were instituted. The defence was that the defendant erred through inadvertence which, it was urged, was excusable on account of the distressing nature of the case, the deceased being her near relative. The bench accepted the explanation apparently, for a fine of £1 only was inflicted with £1 12*s.* 6*d.* costs, and it was no doubt due to the same feeling of compassion and to the defendant pleading guilty that no attention was called to her having signed the death certificate without being a registered medical practitioner. She was amenable to the law for non-notification apparently as a "medical practitioner," the Infectious Diseases Notification Acts providing that "every medical practitioner attending or called in to visit the patient shall forthwith on becoming aware that the patient is suffering from an infectious disease to which the Act applies" send to the medical officer of health for the district a certificate stating the necessary particulars. The question whether she was aware that the patient was suffering from the disease was also not gone into owing to her plea of guilty. The Act does not seem to contemplate the case of a medical practitioner not "becoming aware" until after death.

THE medical officer of health of the Cape Colony reports that for the week ending August 26th the condition of the Colony as regards plague was as follows. No case of plague was discovered in human beings but plague-infected rodents were found at Port Elizabeth and King Williams Town. At

Brisbane one fatal case of plague occurred on August 4th. As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on Sept. 25th states that for the week ending Sept. 23rd there were one case of plague and one death from the disease.

THE opening meeting of the Pupils' Physical Society of Guy's Hospital will be held in the Physiological Theatre on Thursday, Oct. 12th, at 8.15 P.M., when Dr. William Osler, F.R.S., Regius Professor of Medicine in the University of Oxford, will address the society upon "Sir Thomas Browne" and will show a collection of Sir Thomas Browne's works.

THE Middlesex Hospital, which has been closed for two months for cleaning and repairs, was opened on Sept. 18th, and as the result of the first week's work (Monday to Saturday) 132 patients have been admitted to the wards and 1510 out-patients have been treated.

THE medical faculty of the Catholic University Medical School of Dublin has appointed Professor Antony Roche and Professor E. J. McWeeney as its representatives at the forthcoming International Congress on Tuberculosis at Paris.

THE ESSENTIAL CONDITIONS OF STEAM DISINFECTION.

BY WOLF DEFRIES, B.A., M.I.MECH.E.

THE CONDITIONS STATED.

DISINFECTION, unless specially intended to refer to an individual infection, means a process by which the organisms of all infections submitted to it are destroyed. Clothes, mattresses, and porous fabrics of all kinds can in practice be disinfected with certainty and without injury by the use of steam, provided it is saturated, free from air, and at a substantial pressure above that of the atmosphere, preferably at such as will give a temperature of 115°,[1] which at sea-level is ten pounds per square inch. No other process of disinfection is as rapid, cheap, or certain, if the steam satisfies all these conditions; but if it fails to satisfy any one of them it cannot give general disinfection in the sense defined above, whatever apparatus may be used. For practical purposes it is further necessary that both the person who works the disinfector and the person responsible for the disinfection service should know that these conditions are fulfilled whenever the disinfector is used.

THE IMPORTANCE OF THE ISSUES.

The above statements seem to express the fundamental and indispensable conditions of steam disinfection, if it is to be applied generally to all infected objects. They seem to be required by what is known of the chemical and physical facts involved in steam disinfection, and independently to be the inevitable consequence of the bacteriological results. Nevertheless steam disinfectors are used daily with apparent confidence which do not comply with all or some of these conditions. The difference of opinion which is disclosed by this state of things is unreservedly mischievous. If steam for disinfection need not be saturated, under a minimum pressure, and free from air, an authority which has no special interest in the greater rapidity of operation and economy of steam and time which is given by machines in which the steam fulfils these conditions is wasting money if it incurs the considerable increase in first cost which they involve. On the same supposition a maker of steam disinfectors is foolish if he does not offer as instruments of absolute disinfection machines at low pressure or no pressure or with air left in the steam, when by doing so he can without violence to the facts save himself the loss of much business. If, on the other hand, these conditions are really essential to true disinfection, and the disinfection to be obtained from apparatus which do not fulfil them may be illusory, then the sooner the design of disinfectors is made to conform to the required conditions the better for the communities whom the disinfectors are intended to protect. The question is not one to be settled by opinion, whether lay or expert, but by simple fact.

[1] All temperatures in this paper are expressed in degrees Centigrade.

CONVECTION OF BACTERIA FROM CLOTHES, &c.

As to the importance of securing certainty in disinfection, there can be no difference of opinion. The richness in bacteria of porous objects which have been exposed to infection is no longer a matter of conjecture or speculation. Without going through earlier literature the comparatively recent experiments of Nötel[2] illustrate the point in the case of tuberculosis. He borrowed the clothes of a number of tuberculous patents. Taking those which had not been worn for three and five weeks and were in no way marked with sputum, he brushed a little of the dust from them, suspended it in five cubic centimetres of broth, and diluted up to 1 in 100. A little of the emulsion contained the bacillus and killed with tuberculosis the guinea-pigs into which it was inoculated. Just as most other solid particles suspended in fluids, the majority of bacteria floating in air must ultimately settle on solid surfaces. The objects, such as clothes, which are most liable to disturbance or removal will be the most likely to throw off the bacteria from their surfaces and to give them a fresh chance of finding a susceptible host. While the organism is held in clothes or mattresses or the like it can in a few minutes be sterilised, but if through absence or incompleteness of disinfection the opportunity is lost, the infection may pass to susceptible persons either directly or through other objects or persons. From a merely economic standpoint a few such accidents with their derivative cases may easily cost the community as much as a complete disinfector.

RELATION OF EXPERIMENTAL THEORY TO EMPIRICAL RESULTS.

The bacteriological data in regard to disinfection by steam are numerous and in good agreement. It is upon experimental results in actual sterilisation that the best modern practice of steam disinfection has been based. Most discussions on the subject have been practically limited to the exposition and criticism of the conditions under which exposure to steam has been found empirically to destroy certain bacteria. Such experiments are indispensable to any practical process, but it is difficult to obtain a stable practice in an art of which empirical results constitute the foundation, instead of being the independent and indispensable verifications of more general laws. When every new fact is a fresh law, opinion is necessarily more capricious, convictions are less settled, the logical conclusion of facts is less respected than where there is an orderly, demonstrated, and established theory in which fresh facts find their places prepared for them in advance, and can work in civilised coöperation with the results of previous knowledge instead of having to knock them on the head in order to survive. Disinfection by heat is fortunately the consequence of known chemical and physical facts, and not merely a phenomenon attested by bacteriological evidence and inexplicable by more general knowledge. The conditions which are necessary to assure it can be predicted and explained by chemistry and physics where bacteriology can only record the event after it has occurred. Widespread error might have been avoided if the chemical and physical meaning of bacteriological results in steam disinfection had been more often considered before general conclusions were drawn; and it will be convenient, even at the risk of repeating what may be already familiar to many, to refer first to the conditions which are imposed on steam disinfection by the chemical and physical facts of the case.

CHEMICAL DATA.

The chemical composition of bacteria has been studied by many observers, and while considerable variations have been discovered and can be induced not merely between different organisms but also between individual specimens of the same organism, it has in all cases been found that the predominant constituents are coagulable albumins. All analyses of bacterial cultures from those of Nencki[3] down to those of Cramer[4] have agreed in this respect; the Buchners,[5] Hahn, and others found these albumins

[2] Zeitschrift für Hygiene, Band xlviii., p. 1.
[3] Beiträge zur Biologie der Spaltpilze, 1880.
[4] Archiv für Hygiene, Band xiii., p. 71; Band xv., p. 151; und Band xx., p. 167.
[5] Berliner Klinische Wochenschrift, 1890 pp. 672 und 1084. Münchener Medicinische Wochenschrift, 1897, p. 299.

to be intra-cellular and not extra- or inter-cellular constituents. This constant occurrence of albumins in the cell contents of bacteria grown on some considerable variety of culture media might fairly justify the assumption that they are an essential and not an accidental constituent of bacterial cells. This was, however, shown directly by Hellmich[6] who demonstrated them in an organism grown on a non-albuminous medium and yielding albumin-free metabolic products. Disinfection by heat is universally regarded as due to coagulation of the intracellular albumins; and if this hypothesis is correct, the conditions for disinfection, expressed chemically, are therefore those which determine the coagulation of albumins in the circumstances in which they exist in bacterial cells. In the coagulation of albumins by heat the material circumstances are the proportions of salts and of water in the albuminous substance.

The proportion and nature of the salts are variable, and it would involve needless complexity to work out the extent to which they affect the coagulation. The effect of their presence is, as is well known, to delay coagulation or to make a higher temperature necessary for its occurrence. Starke,[7] for instance, found serum albumin, freed as far as possible from salts, in 1 to 1·5 per cent. solution to coagulate at 50°; the addition of 5 per cent. of sodium chloride raised the coagulating point to 75°–80°. For the present discussion the effect of the salts in the bacterial cells may be left out of quantitative account and regarded merely as contributing to increase the resistance of the organism to disinfection.

The data in regard to the influence of water are numerous and concordant, and their unanimous effect is that the resistance of albumin to coagulation increases as the proportion of water is reduced. The temperature found by Starke for his comparatively dilute solution is, as far as I know, the lowest which has been determined. Haas[8] found that egg albumin dried over sulphuric acid in a vacuum and practically water free remained wholly soluble after exposure to 155°; at 160° it became partially insoluble; and at 170° it was entirely coagulated. Serum albumin showed a still higher resistance, remaining soluble at 170°. Lewith[9] heated commercial egg albumin for half an hour at various temperatures and when cooled infused it in cold water for some hours. He found that with 6·2 per cent. of water it was not wholly coagulated at 130°, with 4·9 per cent. at 142°, and with 3·9 per cent. at 143°. This albumin being initially not wholly soluble, he repeated the work on an albumin which was free from salts and globulin, of which the solution coagulated at from 56° to 57°. This albumin was dried in vacuo to 6 per cent. water and portions allowed to absorb water up to 25 per cent. and 18 per cent. respectively. Specimens were kept for half an hour at various exact temperatures. The result was that the specimens containing 25 per cent. water coagulated at from 74° to 80°, those containing 18 per cent. at from 80° to 90°, and those containing 6 per cent. at 145°. That these results depended on the presence or absence of moisture he showed by subjecting some of the preparation which contained 6 per cent. moisture to the action of a Koch's disinfector under various conditions. One set of specimens was sealed in tubes; another exposed in open tubes; a third exposed in tubes which were plugged loosely with cotton-wool. During an hour's steaming he removed a specimen of each kind every minute, and he found that while the specimens heated in the sealed tubes all remained uncoagulated at the end of the hour, those which were exposed in the open tube coagulated after from eight to ten minutes' steaming, and those in the tubes plugged with cotton-wool in somewhat longer, a delay which he attributes to the mixture of the steam with the air in the tubes.

Conditions of Heat Sterilisation Required by the Chemical Data.

The temperature of sterilisation by heat must accordingly depend on the original intrinsic dryness of the organism and on the extent to which its proportion of moisture varies during the process. Leaving the effect of salts out of account, a spore containing 6 per cent. of moisture should, if its moisture remained constant, resist half an hour's exposure to a little less than 145°; if the process, as with hot air or superheated steam, removed moisture from the spore, this resistance should be higher; if moisture was added, as with heated water or saturated steam, it should be lower. There is no known limit to the extent to which spores may resist drying; and their albumin may accordingly be concentrated to any extent without affecting their vitality. The dryer the spore, the less rapidly will moisture penetrate its membrane and dilute the albumin in the cell. All these considerations lead to the expectation that if disinfection by steam is possible at a temperature below 120°, which may be taken as the highest that clothes and similar fabrics can safely stand, such disinfection cannot safely be many degrees lower and will leave no margin of safety, so that it is indispensable to exclude any influence tending either to reduce the quantity of water in the organism or to impede the transference of water from the steam to the cell contents. The necessity for these precautions is the greater because the minute dimensions of the spores, the extent to which fat often enters into their composition, and in practical disinfection as contrasted with the sterilisation of naked laboratory organisms, the frequent presence of a greasy envelope on their surfaces, derived from either pus, sebum, or other secretions, or from mere dirt, may all offer considerable impediment to the wetting of the organisms. In all probability the spore-membrane itself also offers a much higher resistance to the diffusion of water into and out of the cell when dry than when moist.

Physical Data.

Steam is saturated or superheated according as it is or is not capable of condensing without requiring increased pressure or reduced temperature. At a higher temperature than that at which it can condense under the existing pressure it is superheated, and it remains so until either the pressure rises to a sufficient extent—a case which does not occur in steam disinfection—or the temperature falls. Superheat may be produced in steam either by heating the steam without increasing its pressure in proportion, as is done when the steam is contained in a chamber of which the walls are jacketed with hotter steam, or when the steam is generated at atmospheric or other pressure from a saline solution. In either form superheat prevents the condensation of the steam, which can only occur when it has been cooled down to the point of saturation; and until this point is reached the steam, so far from itself condensing, will take up moisture from surrounding objects until it is saturated, just as unsaturated air will do. Air in steam has a very similar effect; the injection of a small quantity of air into steam of which it is desired that condensation should be delayed or prevented is an old and common device in engineering practice. The temperature of air-free saturated steam varies directly with the pressure; when the steam is superheated or mixed with air, its pressure ceases to correspond with the temperature. Conventionally steam at atmospheric pressure has been called in disinfection "current steam"; when saturated it has at sea level a temperature of about 100°. At higher levels the temperature of saturated steam corresponding to atmospheric pressure is below 100°; at Quito, for instance, it is about 92°. The term "current steam" may, however, be also applied with equal accuracy to steam under pressure, if it is flowing through a chamber or pipe. The proper antithesis to current steam is confined steam, and each can exist either at atmospheric or at higher pressure.

The operation of saturated steam passing through a disinfector as a current is to sweep out the air which was originally present and to condense to such extent as may be allowed by its freedom from air the difference between its temperature and that of the surfaces which it meets, and other circumstances. The rate and completeness of the expulsion of air vary widely with the steam velocity. In a disinfector into which it is admitted and remains from the outset as confined steam it mixes more or less completely with the air and condenses, as will be seen from the facts already stated, much less readily than if the air had been expelled. In places in the disinfector where air is trapped or held by objects to be disinfected there may be little or no condensation until the temperature falls, as, for instance, when the door is opened. In some cases what is termed a "vacuum" is used before admission of steam. This term is not used in its physical sense of a complete evacuation of air to within a few millimetres of the column of mercury which the atmosphere will support, but in its engineering sense of a partial vacuum amounting in practice to 16 or 18 up to 22 inches, and corresponding to the retention in the disinfecting chamber of roughly one-third to one-half of

[6] Unpublished work quoted by Lewith, Archiv für Experimentelle Pathologie und Pharmakologie, Band xxvi., p. 341.
[7] Maly's Jahresbericht, Band xi., p. 18.
[8] Prager Medicinische Wochenschrift, 1876, pp. 34, 35, and 36.
[9] Archiv für exp. Pathologie und Pharmacologie, Band xxvi., p. 31.

the air which it originally contained.[10] In some disinfectors the steam is admitted under pressure as a current until the air has been removed and is then used confined, a process which quickens the removal of the air and economises steam.

In all types of steam disinfector the operation of the steam on porous objects is intended to be the same. The steam on meeting a colder surface will condense to such an extent as its superheat and intermingled air, if such conditions exist, and the presence of grease on the articles to be disinfected may allow. In this condensation it gives out its "latent heat," which is sufficient to raise over five times its own weight of water or 15 to 16 times its weight of wool from 0° to 100°. At the same time it shrinks to about one-sixteen-hundredth of its original volume, and fresh steam is sucked into the space so left vacant until in its turn it condenses on the next surface, evolving latent heat as before. In this way the steam finally penetrates the porous objects and raises them completely to its own temperature. It is to this succession of condensations that steam owes its characteristic power and rapidity of penetration, and anything which interferes with these condensations delays and may prevent the penetration of the heat and sometimes even the condensation on the external surface. It may help to form a picture of what goes on in steam disinfection if the process be compared with that of disinfection with hot water. Water before boiling attains the temperature corresponding to the pressure under which it is heated, and for mere disinfection would be as good as saturated steam of the same temperature. It has, however, two disadvantages. The process is slower than steam, because there is no latent heat evolved on condensation, and heat transference occurs solely by conduction. It is also much more difficult to dry porous objects. Steam condensation occurs on the surface of the pores, which may be conceived as cells with their walls covered by a thin film of condensed steam. When the drying is allowed to begin, the walls form evaporating surfaces from which the film readily escapes, especially if it is formed under pressure and allowed to evaporate when the pressure is relaxed. Water, on the other hand, fills the pores and can only dry off from the surface of the objects and not of each individual pore.

CONDITIONS OF HEAT-STERILISATION REQUIRED BY COMBINED CHEMICAL AND PHYSICAL DATA.

No serious dispute can arise as to the facts stated above, many of which could safely have been assumed as of common knowledge. If they are taken together they will be seen to compel certain definite conclusions in regard to heat disinfection. Bacteria are destroyed by heat through the coagulation of albumins, bodies which when free from salts do not coagulate below temperatures varying from 50° to 170° according to the extent of their moisture and when containing salts require still higher temperatures. With 6 per cent. moisture and free from salts they coagulate at 145° in half an hour. Saturated air-free steam condenses as water on surfaces cooler than itself and, subject to such surfaces not being hygrophobic, wets them. Dry spores may contain indefinitely little water; when wetted they allow the passage of water through their membranes but the passage occurs with difficulty in proportion as the membranes are hygrophobic through dryness, fat, or external grease. Hot air absorbs moisture from surrounding objects and in disinfection reduces the moisture in spores, thereby increasing their resistance. Superheated steam does the same until its temperature has fallen to that of saturation. Steam containing air behaves similarly. The temperature at sea-level of saturated air-free steam under atmospheric pressure is 100°. These are in abstract the facts which have been described above expressing the chemical and physical considerations which affect the application of steam to organisms having the composition of bacteria. For the bacteria they tell us that below about 50° we are not to expect sterilisation of any kind; that with spores the sterilisation becomes increasingly difficult as they get drier; that to disinfect dry spores in hot air half an hour's exposure at a temperature of about 145°, plus whatever allowance has to be made for the effect of the salts, is indispensable; that this temperature can only be reduced by getting moisture into the spores, a process which may be impeded by the condition and constitution of the membrane and of the accidental envelope of the spore; that, in short, if spores are to be disinfected at a temperature not exceeding 120°, it is indispensable for them to be wetted by the steam, and that even then there is little or no margin of safety. For the steam they say that superheat and the presence of air are inadmissible, because they prevent condensation in those parts of the disinfector where they exist; and that if the temperature is not substantially above 100° and is much below 120°, the reduction below the temperature at which the spore would be destroyed if it remained dry is unreasonably and dangerously high, particularly having regard to the indeterminate protection which the spore may have from its natural or accidental envelope. Condensing these facts into a single statement they show that superheat, air, and temperatures near 100° must make steam incapable of disinfection in the sense first above attributed to the word which is the sense in which it is, and should be, used in practice.

CONDITIONS OF HEAT STERILISATION ASCERTAINED BY BACTERIOLOGICAL EXPERIMENT.

These conclusions seem minima which follow inevitably from the facts of the earlier part of the paper. If they be now compared with the results of actual disinfection experiment it will be seen that, except where they understate the resistance of the organism, there is the closest agreement between the conditions which are required by the chemical and physical facts and the bacteriological results which are actually obtained.

To pick out what is notorious, the lowest thermal death point of any bacterium in steam is about 50°; in hot air in the experiments of Koch and Wolffhügel[11] exposure for at least three hours to 145° was required for sterilisation.

In regard to superheated steam, the experiments of von Esmarch[12] showed unmistakeably that organisms which were destroyed by an exposure of one and a half minutes to saturated steam at 100° survived 22 minutes' exposure to superheated steam at 141° and in general that superheated steam did not give trustworthy disinfection below temperatures at which hot air itself would be equally efficient. Subsequent research has confirmed this result, and even in this country, where superheated steam was at one time regarded as actually superior to saturated steam, it has long since been discredited.

The necessity for entire freedom from air and for the use of temperatures considerably above 100° has been no less strikingly shown in the bacteriological investigations of the matter. In the experiments of Koch[13] published in 1881, it was stated that steam as a current without pressure was more effective than steam confined under pressure; in other words, that the hotter saturated steam becomes, the less capable it is of heating objects in contact with it. This paradox was inconsistent with the experience of Nägeli, Pasteur, and others from as far back as 1870; and after the publication of Koch's report, Buchner,[14] Fitz,[15] and others endeavoured without success to reproduce his results. The matter was ultimately cleared up by Heydenreich[16] in 1887. Koch had found that in a Papin's digester at 120° a litre flask of water reached only 85° at the end of 30 minutes. Heydenreich, taking precautions to get rid of the air, found that the water under conditions precisely parallel to those of Koch's experiments reached the full steam temperature of 120° in five minutes. Koch's results could only be obtained so long as a certain amount of air remained in the steam. The fallacy of Koch's statement was independently demonstrated by direct bacteriological experiment. Globig[17] killed spores by ten minutes' exposure to saturated steam under pressure at 120°, while they resisted current steam without pressure for five or six hours. Gruber[18] killed other spores by 20 minutes' exposure to saturated steam under pressure at 110°, while they not only survived but seemed to suffer no attenuation of any kind after exposure to current steam without pressure for two and a half hours. Gruber also investigated the suggestion that a high velocity might overcome the disadvantage of the presence of air in the steam; and he found that with a velocity vastly exceeding that which can be obtained in practice

[10] A physical vacuum produced before admission of steam would leave nothing to be desired in the evacuation of the air, but as yet no such machine has been constructed. The use of a partial vacuum merely assures the retention of so much air.

[11] Mittheilungen aus dem Kaiserlichen Gesundheitsamte, 1881.
[12] Zeitschrift für Hygiene, Band iv., pp. 197 und 398.
[13] Mittheilungen aus dem Kaiserlichen Gesundheitsamte, 1881.
[14] In Nägeli's Untersuchungen über Niedere Pilze, 1882.
[15] Bericht der Deutschen Chemischen Gesellschaft, 1884.
[16] Zeitschrift für Wissenschaftliche Mikroskopie, Band i., 1887.
[17] Zeitschrift für Hygiene, Band iii.
[18] Centralblatt für Bakteriologie, Band iii.

he could not get a temperature of 100° inside a horsehair mattress six inches thick even with four hours' exposure. Kitt[19] found spores to survive six hours in current steam without pressure, while they were killed by saturated steam under pressure at 110° in 20 minutes. With the bulb of his thermometer in the actual test-culture itself, the air completely evacuated, and the steam passing through at a high velocity, Miquel[20] found that disinfection did not occur in current steam without pressure until from four to five hours from the time 100° was reached, while another tube of the same culture was disinfected with an exposure of 20 minutes to saturated steam under pressure at 110°. A point of interest in these experiments was the care taken to pass the steam through at high velocity. Von Esmarch found that the rate of disinfection in current steam disinfection was greatly influenced by the steam velocity, a result confirmed by Delépine and others. Miquel's experiments represent, therefore, the action of current steam under atmospheric pressure at its very best disinfectant advantage. This list, tedious though it may be, by no means exhausts the tale of confirmatory experiments; and a similar list could be given of experiments which deal with the proposition, based on the same fallacy of not entirely removing the air, that steam under pressure penetrates more slowly into porous objects than current steam without pressure. Budde,[21] working with one machine at various pressures, found that the higher the pressure the more rapidly the heat penetrated. Pfuhl,[22] employing a machine of another construction at various pressures, had the same result. Frosch and Clarenbach[23] took the pressures up from one-fortieth to one-fifth of an atmosphere and found that as the pressure increased so did the rate of penetration. The actual recorded maximum of resistance appears in a very careful and elaborate research by Christen[24] on the resistance of certain spores to saturated steam at various temperatures. He found that, while they perished at 140° within one minute, they survived exposure to steam at 100°, the temperature of which was carefully controlled, for 16 hours. In no serious experiment in which the fallacy of air pollution was excluded has steam without pressure—i.e., current steam at 100°—given as good results either in point of penetration or of disinfection as saturated steam with pressure—i.e., above 100°; and in order to reduce the disinfectant efficiency of steam under pressure to that of current steam without pressure it is necessary to superheat the steam or to contaminate it with air. Disinfection experiments show therefore, as the chemical and physical facts independently require, that current steam at atmospheric pressure is of much lower disinfectant efficiency than steam under pressure, and that superheat or the omission to remove the whole of the air from a disinfector may reduce the efficiency of a disinfector working with steam under pressure to as little as or less than that of a current steam disinfector working at atmospheric pressure.

Application to Human Infections.

It remains to examine whether such a current steam disinfector working with saturated steam, though incapable of giving general sterilisation in practical conditions, may be a sufficient instrument of disinfection for pathogenic organisms. It is known that some organisms—those, for instance, of typhoid fever, diphtheria, cholera, and plague—are destroyed with certainty by an exposure of a few seconds to such steam, and the circumstances in which they would not be destroyed in an apparatus using such steam must be very rare. There are, however, other infections which are much more resistant. The bacillus of tuberculosis in fresh sputum would be destroyed with certainty by a short treatment with such steam; but if dried in tuberculous matter it may resist any practicable exposure to it. Grancher and Ledoux-Labard[25] boiled portions of tuberculous matter for one hour and three hours respectively; they caused the death from tuberculosis of healthy guinea-pigs inoculated with them.[26]

[19] Ibid.

[20] Annales de Micrographie, iii., iv., et v., 1895.

[21] Zeitschrift für Hygiene, Band viii.

[22] In Behring's Bekämpfung der Infektionskrankheiten, Band iii., Abschn.

[23] Zeitschrift für Hygiene, Band ix.

[24] Mittheilungen aus Klinischen und Medicinischen Instituten der Schweiz, iii., 2.

[25] Archives de Médecine Expérimentale, tome i.

[26] This research is particularly interesting because the periods which elapsed before death—65 and 85 days respectively—were prolonged in some relation to the time for which they had been subjected to the process of attempted disinfection, a control animal inoculated with the untreated matter dying in 28 days. These results show that the attenuation produced by attempted disinfection does not necessarily deprive the infection of its virulence but may merely delay its operation. They also afford a striking illustration of the need to observe cultures for considerable periods after any attempt at disinfection.

The experiments of Kitt quoted above were made on spores of symptomatic anthrax in dried muscles. But, apart from these experiments, it must be remembered that among the most important infectious diseases are some, such as small-pox and scarlet fever, of which the exciting organism has not yet been isolated, and it is only possible to determine what temperature of air-free saturated steam should be used for their destruction by inference and not by direct experiment. It is always to be desired in any art that its practice should be based on first principles of which the application has been verified experimentally. But the impossibility of obtaining experimental verification is not a ground for neglecting the guidance of the first principles. On the contrary, they become of the greater importance because of the absence of direct experiment, and in the present instance the material for their very cogent application is available in the shape of the great resistance which the infections of both small-pox and scarlet fever show to desiccation. A dried flake from a small-pox patient, for instance, may serve for years to inoculate others with the disease. We have already seen that the dryness of an organism is the chief determining factor of its resistance to heat disinfection, and the great resistance of the small-pox infection to drying is therefore conclusive as to the necessity for classing it among those which are specially resistant to steam. It is, perhaps, fortunate that there should be this amount of evidence on the point, but on the standard of what is thought necessary in every other art the conclusion would be the same if we had no more knowledge of the infection than that the disease is persistent and its exciting organism unknown. There is no evidence at all, and in the present state of knowledge as to the constitution of bacteria it is difficult to see how there can be any, to permit the capacity of an organism to cause disease in man to be associated sharply with an incapacity to resist steam. The bacilli of typhoid fever and diphtheria and cholera are of low resistance, but not substantially lower than plenty of organisms not pathogenic to man. The assumption that an unknown infection must have a lower resistance than that of a known bacterium is made, where it is made, without a trace of evidence in its favour, and in no other art would such an assumption be regarded even as excusable. On the contrary, the fact that the infection was unknown would, on the principles of any established art, place it on the list of the most resistant organisms until evidence to the contrary should appear.

Whether we look at the question in the light of existing knowledge as to the composition of bacteria and the behaviour of steam, or decide on the actual evidence of experimental resistance, the facts which have been cited seem capable of no interpretation except that the conditions of saturation, freedom from air, and a temperature well above that of current steam at atmospheric pressure are indispensable to true general disinfection.

Laboratory Disinfection and Practical Disinfection.

There is a further consideration which indicates the importance of keeping such conditions in mind. The results on which they are submitted as established are those of laboratory experiment: naked spores treated by skilled observers. In every practical art other than that of disinfection it is invariable to allow a "factor of safety" in translating laboratory results into practice, and to put a higher strength in practice than is theoretically necessary in a laboratory. The purpose of such factor is to provide against the chapter of accidents which is or should be rigorously excluded from laboratory experiment but is never absent in practical work. If, for instance, germs are present in a somewhat greasy envelope of dirt, or pus, or sebum, as may readily occur in practice, the condensation of steam on them is delayed or even prevented, and with it the permeation of the cell by water which must occur, as we have seen, before the germ can be destroyed at any temperature which fabrics can endure. The need for a margin such as is given by the factor of safety is as great in disinfection as in any other art, but unfortunately the nature of the fabrics to be treated prevents any substantial margin from being applicable. In holding, therefore, that the conditions which the laboratory facts

demand should be enforced as a minimum we are already shifting laboratory results into practical use without providing any factor of safety. A serious factor of safety is impossible, because it would substitute destruction for disinfection; but the fact that it is impossible furnishes a reason of more than usual weight for at least maintaining in practice what in the laboratory is known to be a minimum. The accidents of practice, a little air trapped here, a little grease there, some chance impediment to the penetration of the steam, may add considerably to the natural resistance of the organism. This consideration would by itself be enough to make current steam at atmospheric pressure untrustworthy, for there is no means practicable for controlling or recording its velocity, which is, as has been seen, of the utmost importance to its efficiency. It also indicates the need for using means whereby the pressure of the steam and its freedom from air may be recognised and recorded independently of the operator.

RETURN CASES AND IMPERFECT DISINFECTION.

It must have struck others, as it has me, that the looseness with which the matter has too often been treated may be to some extent due to the fact that among the number of possible sources of infection to which a secondary case may be attributed it must be always difficult, and indeed rarely possible, to trace it to the failure of a steam disinfection. It would be hard to distinguish among cases in a suitable geographical relation to a small-pox hospital those which are conveyed aerially from those of which the infection is distributed by the insusceptible convalescent through his imperfectly disinfected clothing. But the fact that secondary infection occurring through imperfect disinfection is not easy to detect does not diminish either its extent, its mischief to the individual, or its cost to the community. The public rates and private loss are increased by such avoidable infection to exactly the same extent as if the cause were known or inevitable, and the policy of imagining that assured disinfection is to be had in practice by any process which will not sterilise with certainty in a laboratory is as the policy of the ostrich, except that the bird is more certainly enlightened by the course of events.

THE ANNUAL REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD.

SECOND NOTICE.[1]

The Water-supply of Bedford.

FOR some time past it has been recognised that the public water-supply of Bedford is in many respects unsatisfactory. The supply is obtained by pumping from headings driven into the great oolite near the northern boundary of the town and has frequently failed in dry seasons, notwithstanding the provision of additional headings on various occasions since the waterworks were constructed in 1871. The shortage in several summers has had to be met by admitting water from the river Ouse, just above Bedford, into the pump well. Water pumped from this well is filtered before being admitted to the town mains, but the pumping machinery, filters, and storage reservoirs are all insufficient for the present requirements of the growing population of the place. Bedford, in consequence of its importance as a place of education, has special cause to apprehend the effects of epidemic disease being distributed by means of its water-supply. The town has happily so far escaped any outbreak of water-borne disease but the need for improvement in the present state of affairs is realised by all. Unfortunately, however, the Bedford town council, after four or five years of debate and discussion, has not yet decided upon the steps which should be taken for this purpose. The whole matter was apparently settled in 1902, when the town council, on expert advice, resolved to abandon the local "oolite" water and to go some 12 miles south of Bedford to the lower greensand where there is every reason to believe that an abundance of water can be obtained by pumping from deep wells. In that year it obtained Parliamentary powers (including ability to borrow sums not exceeding £135,000, repayable in 60 years) and spent some £3000 in preliminary expenses in connexion with the greensand scheme. The year after its Water Act was obtained, however, an influential party in the town council made a strong attack upon the greensand project and a series of local elections was fought on the question. The opponents, who ultimately were successful, insisted that the cost of the greensand water was more than the town could reasonably afford, notwithstanding the long period of years over which the loan could be distributed. They put forward the alternative proposal of improving their present "oolite" supply, and after they had secured a majority in the council they applied to the Local Government Board for power to borrow £24,000, which was reckoned to be sufficient for this purpose.

An inquiry into this application was held early in 1904 by Mr. H. R. Hooper and Dr. G. S. Buchanan, representing the engineering and medical departments of the Local Government Board. At this inquiry, which lasted three days, a variety of conflicting evidence was received from important expert witnesses, including Sir William Crookes, Sir James Dewar, and Major H. Tulloch in favour of the oolite scheme, and Professor Boyd Dawkins, Dr. E. Klein, Sir T. Stevenson, and Mr. G. F. Deacon on the other side. The inspectors' conclusions were adopted by the Local Government Board and communicated to the town council, but, following what appears to be the usual custom in connexion with such inquiries, their report itself was not then published. In view, however, of its local interest but "mainly in anticipation that it will be useful to local authorities and their advisers who may also be confronted with the necessity of choosing between making radical alterations in an existing system of water-supply and providing new waterworks altogether" Mr. W. H. Power has included this report in the annual report of the medical officer of the Board for 1903–04 recently issued. Perusal of the report shows the advantage of placing on permanent record the results of an inquiry of this kind. The inspectors show that the present source of supply is open to risk of dangerous pollution in consequence of extensive excavations for brick-making and stone-quarrying which have been made by a private owner by the side of the headings in the oolite rock from which the town water is obtained. The surface here is sealed by a considerable thickness of boulder clay and great oolite clay but the water-containing rock of the great oolite is exposed at the foot of these quarries. Some 40 men are employed here in busy times. The level of open pools of water in these various excavations was found to be influenced to marked extent by the pumping operations; one such pool was found by the inspectors to have fallen 18 inches as the result of a morning's pumping. In addition, the evidence given showed that water which reaches the headings from other places might become contaminated by excremental matters. The river Ouse, which has at times to be resorted to as a supplementary source of supply, is also open to risks of pollution. To these considerations, which were indicated by actual examinations and by geological evidence, more importance must be attached than to the conflicting opinions expressed by experts at the inquiry regarding the significance of a number of bacteriological results showing the frequent absence or the occasional presence of bacilli of the coli group. The filtration provided was proved to be unsatisfactory, partly because of the insufficient area of the filters and partly because of various structural defects.

The proposals made by the town council to the Local Government Board for improving the quantity and quality of the supply were rejected by the inspectors as being inadequate for the purposes intended. It was proposed to obtain additional water by means of a heading into the oolite rock in a new direction, but although the geological evidence made it probable that a considerable addition to the present supply would thus be obtained, there remained the certainty that whenever difficulties arose the Ouse would again be drawn upon. The scheme did not provide for additional pumping machinery or for greater storage and would have allowed Bedford to continue with a narrow margin of storage amounting to only one-third of one day's supply. It was not proposed to buy up the excavated lands adjoining the headings but merely to enter into a covenant with the owner to keep well above the great oolite rock in future excavations and to attempt to seal by means of clay the rock at present exposed. Finally, the scheme was complicated by the introduction of a system of filtration which was new in principle, the plan being to treat

[1] The first notice was published in THE LANCET of Sept. 16th, 1905, p. 845.

the water by sprinkling it over circular beds of sand after the manner of the "aerobic" filters which have proved successful in purifying sewage. The inspectors reported that while a good deal might be said *a priori* in favour of this system, which was designed by Major H. Tulloch, C.B., the evidence that it would be generally satisfactory in practice or would give security in the event of specific pollution of the water was altogether insufficient. They also reported that no proof had been forthcoming to show that advantage would be gained by the use of "polarite" in the filters proposed by Major Tulloch. In brief, their conclusions were that it was impossible for Bedford to obtain a supply satisfactory in quality and quantity by the expenditure of £24,000 in the manner proposed. They advised, however, that it would be possible to obtain such a supply from the oolite rock by developing the existing waterworks if additional precautions were taken to guard against pollution, if further works were undertaken to secure uniform and satisfactory filtration, and if also a number of additional engineering works were provided. These matters are formulated in detail in their report and make it clear that the adoption of an "oolite" scheme which the Local Government Board would accept must entail a much greater expense than contemplated by the opponents of the greensand scheme which was authorised by Parliament in 1902, and that apart from cost the latter scheme in some directions promised greater advantages than could be obtained by any "oolite" scheme. The town council since being informed of the inspectors' conclusions has undertaken new works with the object of presenting an amended scheme in connexion with the present waterworks which will satisfy the Local Government Board. In so far as these experimental works promise to be thorough and include a careful examination of the new method of filtration proposed by Major Tulloch the results will be watched with interest.

It is to be hoped, however, that the town council realises the very serious position in which Bedford would be placed if the outcome of present experiments and discussions were to be a new scheme which the Local Government Board had again to reject. If cost is the main question, as from this report appears to be the case, the town council ought to make sure at the earliest opportunity of the expense which a really satisfactory "oolite" scheme will involve and balance this against careful and detailed estimates of the expense of the alternative proposal of obtaining a supply from the greensand. The latter should not be abandoned in order merely to gain a comparatively trifling saving in cost and the sooner a final decision can be come to as to the relative merits and costs of the two projects the better will it be for the interests of the public health and convenience of the town.

THE ALVERSTONE MEMORIAL HOSPITAL.

THIS hospital has been presented to Shanklin, Isle of Wight, by the Right Hon. Lord Alverstone as a memorial to his son, the late Hon. Arthur Harold Webster. The building has been erected from the designs of Mr. E. I'Anson, F.R.I.B.A., who, it will be remembered, is now engaged with the rebuilding of St. Bartholomew's Hospital.

This cottage hospital consists of a building of one storey. There are two wards divided by an observation ward or duty room, which last is fitted as a miniature kitchen. There is one ward each for women and men accommodating six beds in all. The walls and floors of the operating room, for instance, are capable of being washed with a hose, the walls being lined with tiles and the floors paved with mosaic, having channels all round for carrying off water into an external gully. The sinks in the operating room are well fitted in all respects, having valves operated by the elbow, and the operating table is provided with a very desirable addition—viz., a hot water jacket. The room itself has an ample north light. Similar flooring is laid in the hall, the bathroom, and lavatories.

The wards, which are on the ground floor, are light and airy and have had special attention given to them in the matter of ventilation. The incoming fresh air is heated by being drawn in and passed round the back of the stoves before entering the room, thus greatly minimising the chances of draughts, while near the ceilings the vitiated air is extracted by the heat from the flue and carried off through a separate shaft. In mild weather the ample windows, which are fitted with adjustable hoppers, provide all the ventilation necessary. The floor of these wards consists of solid pine-wood parquet which if kept well waxed and polished will present an impervious surface. A noticeable feature is the absence of the ordinary skirting which is replaced by a hollow pine base to the wall, tiling or plaster, forming a channel with the wood floor, thus facilitating cleansing operations. The miniature dispensary is fitted with most of the accessories usual in a well-appointed hospital, the bottles for liniments and concentrated poisons being of corrugated glass and coloured.

The bathroom and lavatories, like the operating room, have side channels in the mosaic floor communicating with an external drain by a disconnected channel gully, admitting of the whole being flushed with a hose. Mr. I'Anson has provided bracket closets built into the wall, leaving the floor space clear beneath, though the old height of 18 inches to the top of the seat has been retained. The lavatory is provided with a special bed-pan sink with an ascending jet operated by a foot valve; also a properly constructed and well-ventilated closet has not been forgotten for the storage of excreta waiting medical inspection. In these offices, as in the wards, square corners have been avoided, upright channel tiles being used for the angles. Indeed, the absence of sharp corners is noticeable throughout, including the woodwork generally.

The furniture is of a very complete but simple kind, well suited to the building, that in the wards being metal finished in white enamel. In the committee room and the rooms for the staff the furniture is of oak throughout, and here the same care has been shown to avoid any possible opportunity for the accumulation of dust and to render every facility to insure cleanliness. Most of the chairs have wooden seats; those that are stuffed are covered with a washable material in appearance like leather, but the seats and backs can be easily moved, rendering the whole readily accessible.

Dr J. Cowper and his partner Dr. J. A. B. Hammond, who are giving their services gratuitously to the hospital and in whose hands the management will rest, are to be complimented upon the result of their efforts, as they are largely responsible for the efficiency of the building. They are also to be congratulated upon the loyal support which they have evidently received from those who have been associated with them in the work.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8147 births and 4124 deaths were registered during the week ending Sept. 23rd. The annual rate of mortality in these towns, which had been 17·3, 16·1, and 14·3 per 1000 in the three preceding weeks, further fell last week to 13·8 per 1000. In London the death-rate was 13·3 per 1000, while it averaged 14·0 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 4·2 in Handsworth (Staffs.), 6·8 in Hornsey, 7·0 in Burton-on-Trent, 7·1 in Bournemouth, 7·3 in West Hartlepool, 7·5 in King's Norton, 7·7 in Leyton, and 7·8 in Rotherham; the highest rates were 17·2 in Liverpool, 17·3 in Bolton, 17·4 in Leicester, 17·5 in Tynemouth, 19·0 in Gateshead, 19·1 in Stockport, 19·3 in Wigan, 19·8 in Merthyr Tydfil, 20·1 in Middlesbrough, and 22·6 in Burnley. The 4124 deaths in these towns last week included 655 which were referred to the principal infectious diseases, against 1432, 1091, and 820 in the three preceding weeks; of these 655 deaths 457 resulted from diarrhœa, 60 from whooping-cough, 40 from scarlet fever, 39 from diphtheria, 31 from measles, and 28 from "fever" (principally enteric), but not any from small-pox. No death from any of these diseases was registered last week in Hornsey, Bournemouth, Great Yarmouth, Handsworth (Staffs), or Wallasey; while they caused the highest death-rates in West Bromwich, Wigan, Warrington, Burnley, Preston, Middlesbrough, Sunderland, and Merthyr Tydfil. The greatest proportional mortality from measles occurred in Barrow-in-Furness; from whooping-cough in Ipswich and Rochdale; from "fever" in Wigan; and from diarrhœa in West Bromwich, Wigan, Bolton, Bury, Burnley, Preston, Middlesbrough, Sunderland, and Merthyr Tydfil. The mortality from scarlet fever and from diphtheria showed no

marked excess in any of the large towns. No fatal case of small-pox was registered either in London or in any other of the large towns and no small-pox patients remained at the end of last week in the Metropolitan Asylums Hospitals. The number of scarlet fever patients remaining under treatment in these hospitals and in the London Fever Hospital on Saturday last, Sept. 23rd, was 3424, against 2873, 2982, and 3150 on the three preceding Saturdays; 546 new cases were admitted the week, against 427, 443, and 469 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 131, 133, and 123 in the three preceding weeks, rose again last week to 130, but were 39 below the number in the corresponding period of last year. The causes of 42, or 1·0 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Salford, Bradford, Leeds, Hull, Newcastle-on-Tyne, and in 51 other smaller towns; the highest proportions of uncertified deaths were registered in Birmingham, Liverpool, Warrington, Blackburn, Preston, Sheffield, South Shields, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 14·8, 14·0, and 15·0 per 1000 in the three preceding weeks, declined again to 13·5 per 1000 during the week ending Sept. 23rd, and was 0·3 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 9·0 in Leith and 10·0 in Aberdeen to 14·6 in Dundee and 16·8 in Perth. The 453 deaths in these towns included 38 which were referred to diarrhœa, eight to whooping-cough, five to "fever," three to scarlet fever, three to diphtheria, and two to measles. In all 59 deaths resulted from these principal infectious diseases last week, against 96, 69, and 71 in the three preceding weeks. These 59 deaths were equal to an annual rate of 1·8 per 1000, which was 0·4 per 1000 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 63, 41, and 32 in the three preceding weeks, rose again last week to 38, of which 25 occurred in Glasgow, five in Edinburgh, three in Dundee, and three in Aberdeen. The deaths from whooping cough, which had been 14, nine, and ten in the three preceding weeks, declined again to eight last week and included five in Glasgow. The fatal cases of "fever," which had been four, six, and ten in the three preceding weeks, declined last week to five, of which three were registered in Edinburgh. The deaths from diphtheria, which had been six, four, and 11 in the three preceding weeks, decreased again to three last week and all occurred in Glasgow. The fatal cases of scarlet fever, which had been two, two, and five in the three preceding weeks, declined again last week to three, of which two were registered in Glasgow. The deaths from measles, which had been seven, seven, and three in the three preceding weeks, further fell last week to two, both of which occurred in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 53, 60, and 63 in the three preceding weeks, declined again to 58 last week, and were eight below the number in the corresponding period of last year. The causes of 19, or more than 4 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·0, 18·4, and 16·2 per 1000 in the three preceding weeks, rose again to 17·9 per 1000 during the week ending Sept. 23rd. During the past four weeks the death-rate has averaged 18·6 per 1000, the rates during the same period being 14·9 in London and 14·0 in Edinburgh. The 130 deaths of persons belonging to Dublin registered during the week under notice were 12 in excess of the number in the preceding week, and included 13 which were referred to the principal infectious diseases, against 23, 17, and 12 in the three preceding weeks; of these ten resulted from diarrhœa, two from "fever," and one from whooping-cough, but not one from small-pox, measles, scarlet fever, or diphtheria. These 13 deaths were equal to an annual rate of 1·8 per 1000, the death-rates last week from the principal infectious diseases being 1·7 in London and 1·4 in Edinburgh. The fatal cases of diarrhœa, which had been 19, 12, and 10 in the three preceding weeks, were again 10 last week. The 130 deaths in Dublin last week included 33 of children under one year of age and 33 of persons aged 60 years and upwards; the deaths of infants corresponded with the number in the preceding week, while those of elderly persons showed a considerable increase. Five inquest cases and three deaths from violence were registered; and 42, or nearly a third, of the deaths occurred in public institutions. The causes of five, or nearly 4 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon E. St. M. Nepean to the *Britos* for the drill season. Staff Surgeons: H. P. Jones to the *Victory*; W. Jackson to the *President*, additional, for hospital course; and J. C. Rowan to the *Patrol*. Surgeons: A. D. Spalding to the *Queen*; J. P. H. Greenhalgh to the *Sutlej*; E. C. Sawdy to the *Hogue*: W. G. Edwards to the *Kinsha*; E. F. Ellis and W. H. Pope to Plymouth Hospital; and E. T. Burton to the *Montagu*.

In accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet Surgeon Henry Erskine South has been placed on the Retired List, at his own request (dated Sept. 22nd, 1905). Fleet Surgeon William Manley Lory has been placed on the Retired List at his own request, with permission to assume the rank of Deputy Inspector-General of Hospitals and Fleets (dated Sept. 23rd, 1905). Staff Surgeon Alexander Thomas Wysard has been placed on the Retired List (dated Sept. 14th, 1905).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel C. W. Johnson and Major C. B. Martin are selected for duty in the Straits Settlements. Major J. E. Brogden is selected for duty in North China. Lieutenant-Colonel S. R. Wills is selected for duty in the Belfast District.

Lieutenant-Colonel A. M. Davies has been appointed Professor of Hygiene at the Royal Army Medical College, vice Lieutenant-Colonel R. H. Firth, who has completed five years' service.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant Herbert Meggitt, Middlesex Imperial Yeomanry, to be Surgeon-Lieutenant (dated Sept. 27th, 1905).

IMPERIAL YEOMANRY.

Lothians and Berwickshire: Surgeon-Lieutenant-Colonel T. F. S. Caverhill is granted the honorary rank of Surgeon-Colonel (dated Sept. 27th, 1905). Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel T. F. S. Caverhill resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated Sept. 27th, 1905).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 3rd Kent (Royal Arsenal): Surgeon-Lieutenant-Colonel A. H. Robinson is granted the honorary rank of Surgeon-Colonel (dated Sept. 27th, 1905); Alexander Robert Tweedie to be Surgeon-Lieutenant (dated Sept. 27th, 1905). 1st Renfrew and Dumbarton: Surgeon-Major W. R. Sewell to be Surgeon-Lieutenant-Colonel (dated Sept. 27th, 1905).

Royal Engineers (Volunteers): 2nd West Riding of Yorkshire (Leeds): Surgeon-Lieutenant W. H. Galloway to be Surgeon-Captain (dated Sept. 27th, 1905).

Rifle: 1st Volunteer Battalion the Norfolk Regiment: Supernumerary Surgeon-Captain J. H. Stacy, Commanding the Norfolk Volunteer Infantry Brigade Bearer Company, to be Surgeon-Major and to remain Supernumerary (dated August 19th, 1905). 3rd (Dumfries) Volunteer Battalion the King's Own Scottish Borderers: Surgeon-Major J. Maclachlan to be Surgeon-Lieutenant-Colonel (dated Sept. 27th, 1905).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Welsh Border Bearer Company: Captain F. H. Thompson is granted the honorary rank of Major (dated Sept. 27th, 1905).

THE NEW VICEROY OF INDIA

We understand that Surgeon-Lieutenant-Colonel W. R.

Crooke-Lawless, Coldstream Guards, has been selected to fill the post of medical officer on Lord Minto's staff.

THE MEDICAL SUPPLIES OF JAPAN DURING THE RECENT WAR.

The *Army and Navy Gazette* of Sept. 23rd states that "the scale of medical supplies in the Russo-Japanese war, so far as the Japanese were concerned, may be gathered from the fact that at one time 50,000 large cases were shipped to their troops in Manchuria—2,000,000 pills a day were produced by the military medical laboratory in Tokio. Every Japanese soldier is required to take a pill of beechwood creosote each day as a prophylactic against dysentery, a tin containing 90 pills being issued to each soldier. At one time 100,000 pounds of quinine, carbolic acid and corrosive sublimate were purchased in the western market, and, in addition, enormous amounts of gauze, cotton, and other surgical materials, all carefully inspected by experts."

THE ROYAL MILITARY HOSPITAL, STOKE, PLYMOUTH.

On Sept. 21st the Duke of Connaught inspected the Royal Military Hospital, Stoke, where he was received by Colonel G. D. Bourke, R.A.M.C., and the other officers of the establishment. During the period of the South African war the resources of the hospital were unequal to the demands and huts were built to give extra accommodation for the wounded soldiers, but a few months after the termination of hostilities the pressure ceased, and there are now only 119 patients in the hospital and 243 beds are unoccupied. His Royal Highness went over all the wards and visited the operating theatre as well as the new kitchen which has recently been added.

JAPANESE NAVAL SURGERY.

A *Times* telegram, dated Sept. 27th, gives a summary of some remarks made by Surgeon-General Suzuki at the Convention of Military Surgeons at Detroit. Much of the success of the Japanese surgery in the navy was due, he thinks, to the fact that before an engagement each member of the crew of a warship was ordered to bathe and to dress in perfectly clean underclothing.

Correspondence.

"Audi alteram partem."

THE MOTOR NUISANCE ON THE RIVIERA.

To the Editors of THE LANCET.

SIRS,—In view of the forthcoming Tuberculosis Congress in Paris next week will you allow me to express through your columns the hope that the motor nuisance along the health resorts of the Mediterranean littoral will be thoroughly discussed at the Congress by those competent to give their opinion on the subject. Medical men now hesitate to send to Cannes, Nice, Mentone, Bordighera and San Remo, or Hyères and Grasse their tuberculous patients on account of the fine particles of dust perpetually cast up into the air by the hundreds of motor-cars which rush to and fro along the roads of those once secluded and peaceful health resorts. Now no place is sacred to the "nouveaux riches"; where the sufferer lies 'twixt life and death, gasping for the warm ozone of the Mediterranean, which, perchance, may turn the scale in his favour, there the motor fiend hurls his machine along, scattering death particles behind him, stifling the poor patients' lungs, smothering all vegetable life, dirtying the façade of every house along the road, and covering every article of furniture in them with inches of road débris. The time has come for the medical profession to rise and to protest loudly and effectively against this nuisance. British physicians, both here in Paris and in Great Britain, are the "principal exporters" (pardon the word) of patients to the Riviera and we have therefore the right to speak. Since Bennett created Mentone 60 years ago right on till to-day what medical man has not had cause to rejoice that he sent his consumptive patient, who could afford the expense, to those life-giving shores of the Mediterranean? And no other region has so far equalled them in the good results obtained. Algiers and Egypt are still too recent as health resorts and too poor in comforts; the variableness of the temperature inside the hotels and outside is too great; the monotony of the desert is too depressing to the invalid; the hygienic conditions still too primitive. All these drawbacks for many years to come will prevent many physicians from sending the Riviera cases to these comparatively new resorts. We must continue relations with our first love and to guard this Garden of Eden against the automobile invader. One would have thought that the hotel-keepers, who live by means of the visitors, would have been the first to take measures against the threatened ruin of their trade. But so far they hesitate to act, as the automobilists who have visited them have not only left road dust but gold dust also behind them. The fight for the hotel-keepers' vote and attentions is now between the consumptive patient and the rich motorist, between suffering and wealth. To vote for the latter must eventually be suicidal for the motorist is a meteorist whilst the tuberculous patient comes to stay and to return. I leave it to the congressists to suggest the means whereby the motorists can travel along the Riviera without prejudice to the patients.

I am, Sirs, yours faithfully,

Paris, Sept. 25th, 1905. D. E. ANDERSON.

ANGINA PECTORIS AND ALLIED CONDITIONS.

To the Editors of THE LANCET.

SIRS,—Once again the unsolved problem of the mechanism of angina pectoris is brought forward by Dr. Thomas Oliver in his able lecture published in THE LANCET of Sept. 16th, p. 809. The lecturer, while referring with some approval to Huchard's hypothesis of vaso-constriction of the coronary arteries, points out some of the objections thereto. One, however, he omits, and this is a serious one—namely, Professor Schäfer's recent experiments, which render it highly improbable that coronary arteries are provided with any vaso-motor fibres at all. Should this conclusion be confirmed Huchard's view must of course be finally abandoned.

But there is another hypothesis[1]—namely, that the pain of angina depends upon vascular distension in the mediastinum, including the coronary area. Such would not be inconsistent with the absence of coronary vaso-motor fibres. The vascular distension would depend upon vaso-dilation in these areas and the vaso-dilation would be compensatory of the well-known peripheral vaso-constriction, which is one of the most constant phenomena of angina pectoris. This view can, I think, be shown to be consistent with all the known facts of the disease. In addition to the localised vaso-dilation the vascular distension would depend upon (1) peripheral vaso-constriction; (2) the work done by the left ventricle; and (3) the integrity of the mitral valve. And it can be shown that conditions which eliminate any one of these three factors relieve the anginal paroxysm. 1. As is well known, the peripheral vaso-constriction, and concurrently the pain, are relieved by amyl nitrite inhalation. It is not perhaps so widely known that heat extensively applied to the surface of the body is capable in many cases of relieving angina. Now it might be that the nitrite relieved angina by relaxing constricted coronaries, but it could hardly be maintained that superficial heat acted in this way. 2. The work done by the ventricle is temporarily reduced during syncope; and many cases could be given showing that the onset of syncope is concurrent with the relief of anginal pain. But the work done by the ventricle is permanently reduced in the cardiac failure of advanced heart disease; and Oliver himself points out that patients long subject to præcordial pain obtain permanent relief on the supervention of cardiac dilation and failure.[2] 3. The integrity of the mitral valve. Broadbent points out that "the supervention of mitral regurgitation may greatly diminish the liability to attacks in cases of angina"[3]; and that the future course of the disease may be entirely changed.

Vascular distension affecting the cardiac plexuses would explain the radiating pains of angina. Frequently recurrent distension would explain the inflammatory changes found in the cardiac plexus by Lancereaux and Huchard and in the right and left coronary plexuses by Mott.[4] Frequent vaso-dilatation would on Thoma's view explain the common occurrence of arterio-sclerosis of the coronary arteries just as the long recurrence of the same vascular condition explains

[1] Australasian Medical Gazette, August, 1903.
[2] THE LANCET, Sept. 16th, 1905, p. 809.
[3] THE LANCET, May 27th, 1905, p. 1400.
[4] THE LANCET, Sept. 16th, 1905, p. 812.

the arterio-sclerosis of the temporal artery in cases of old-standing migraine. It would explain the development of the intravascular aneurysm of the coronary found post mortem by Alexander Morison.[1] An extension of the dilated area would explain the flushing of the face and distressing sense of throbbing in the back of the head and neck which Oliver says occurred in one of his cases almost contemporaneously with the præcordial pain. Finally, the view here enunciated is consistent with the vaso-motor view of the mechanism of migraine and asthma, affections connected by the closest ties with the "functional" form of angina pectoris.

I am, Sirs, yours faithfully,

FRANCIS HARE.

RESEARCH IN MEDICINE.

To the Editors of THE LANCET.

SIRS,—The practicability of making pecuniary provision for research in its medical aspects forms the subject of the leading article upon my scheme for the promotion of scientific research which appeared in THE LANCET of May 6th last and it is again dealt with in the leading article under the above heading in THE LANCET of Sept. 9th. As I perceive that the opinions expressed in the latter article are in accord with my own as to the impracticability of making such provision in the form of stipends for the workers engaged in research I may, I think, appropriately refer to my scheme, which defines conditions and organisations designed to render it practicable to expend moneys in the provision of pecuniary incentives to research, subject to results being attained that would warrant their expenditure.

The article on the scheme is for the most part one of general comment. I did not, therefore, at the time it appeared make a point of communicating with you in regard to such cases as those in respect to which you apprehend a difficulty in connexion with the scheme, where applicants applying under its provisions for grants for discoveries having practical applications have availed themselves of the results of the researches of others. In relation to such cases permit me to mention that the grants are not proposed to be made *ex debito justitiæ* any more than are grants of patent rights under the Patents Acts, to which so much of the scheme is analogous. It has been devised to subserve the interests of discoverers in so far only as the subservience of their interest may be made subsidiary to public interests. But in considering to what extent the interests of discoverers may be affected by the allocation of moneys, according to the principles of the scheme, to a specified purpose, the terms in which the discoveries are defined for which the grants may be obtained must be taken into account. In exemplification of this let it be assumed that moneys are to be allocated in relation to a specified disease from which the mortality is great. The grants may be restricted to new scientific discoveries which have effected or contributed to a diminution of that mortality. They may also be extended to those discoveries which materially advance the knowledge of the nature or causation of the disease. And it is especially noteworthy that the scheme admits of discoveries in respect of which applications for grants are made being investigated in the light of after-acquired knowledge, for no limitation is imposed as to the time within which an applicant for a grant may, under Provision 6 of Clause 28 and Clauses 36 to 41 of the scheme, furnish evidence of the merit of his discovery and of its having fulfilled a prescribed condition. Having regard to the conditions under which such grants might be obtained they could be made sufficiently large, subject to the restrictions specified in the scheme, to offer strong inducements to many to pursue researches directed to their attainment.

I am, Sirs, yours faithfully,

WALTER B. PRIEST.

Verulam-buildings, Gray's Inn, W.C., Sept. 19th, 1905.

BREECH PRESENTATIONS.

To the Editors of THE LANCET.

SIRS,—Among my early cases of midwifery were a succession of primiparæ with breech presentation and I was soon struck by the high proportion complicated by the well-known extension of the child's two lower limbs at the knee-joint. This induced me to examine the statistics and they certainly show that this complication is far commoner in primiparæ than in the multipara. For example, the St. Thomas's Hospital Reports for 1901 show 49 cases of single-birth breech presentations; 13 were primiparæ and in eight at least of the 13 (i.e., in over 61 per cent.) there was impaction due to extended legs. Of the 36 multiparæ three only (i.e., 8·3 per cent.) were complicated in the same way. I have failed to find the point mentioned in the books, and it seems to me to be of practical import. For given a primipara with the breech presenting, one is apt to refer the protraction of labour to the fact that we are dealing with a woman in her first confinement, while in over 60 per cent. of similar cases mentioned above delay was liable to arise from the splint-like action of the extended limbs.

Now, while it is better not to interfere with a breech presentation if the child's limbs are flexed at the knee-joint and the os cervicis is being dilated, the sooner, on the other hand, the extended legs are reduced the better. Hence we welcome any sign which will give us an early clue as to the state (flexion or extension) of the child's legs. As a rule, little or no information on this point is obtained by abdominal palpation. However, in nearly all my later cases I found the following sign to be very valuable. It depends on the extension of the child's legs causing increased convexity of the spine, especially of the lower dorsal, lumbar, and sacral regions, thus bringing these parts within easy reach of the examining finger. In fact, the lower lumbar spines may be said to have been presenting in some instances.

Given, then, a primipara, and as a rule we are called when the membranes are ruptured and the os cervicis but little dilated, if we note that the child's lumbar spines are abnormally easy to define we will be very suspicious that we are dealing with a case of extended legs. Impaction will probably follow unless the extension is reduced. I hope the sign mentioned may be useful in leading to earlier recognition of the condition for this would induce earlier interference to the obvious benefit of the mother and child.

I am, Sirs, yours faithfully,

ROBT. E. ROBERTS, M.B., B.Sc. Lond.

Ynysddu, Monmouthshire, Sept. 21st, 1905.

INSPECTION OF NURSING HOMES.

To the Editors of THE LANCET.

SIRS,—Through absence from town I have only just seen Dr. Glynn Whittle's letter on the above subject in THE LANCET of Sept. 16th, p. 852. I am still of the same opinion that the registration of trained nurses and the inspection of nursing homes are two distinct questions, and that any Bill dealing with the former should not be overweighted with the latter. I also hope that when any successful effort at professional organisation resulting in the control and coördination of trained nurses is carried through many of the evils pointed out by Dr. Whittle as existing in nursing homes will disappear, or the homes themselves will disappear. In either case the inspection of nursing homes, which will prove a costly and difficult matter, concerns the public and the medical profession, and legislation, if called for, should be promoted apart from any proposal to register trained nurses.

I am, Sirs, yours faithfully,

Sept. 25th, 1905. C. J. WOOD.

THE TECHNIQUE OF THE EXAMINATION OF THE SPUTUM FOR TUBERCLE BACILLI.

To the Editors of THE LANCET.

SIRS,—We are not taking part in some sport similar to "a grocer's Derby." It is not altogether in how short a time the tubercle bacillus may be demonstrated but what is the technique that in the hands of workers without special training and without special facilities will secure that result with some degree of certainty when we examine sputum not obtained in sanatoriums for consumption but in the daily round of private practice that is the question. From personal experience and recent private correspondence I find that the routine examination occupying about ten minutes, which I ventured to suggest, is successful in this. Not that I am pleased with it taking "ten minutes." With someone to time me, with laboratory appliances, with the moral certainty that the sputum before me is a rich culture of tubercle bacilli, and with no respect

[1] THE LANCET, Nov. 8th, 1902, p. 1249.

for a workman-like finish I might even break your correspondent's record, to have mine broken in turn. Still, as "scorching" never popularised sport, so it will be found that the man unaccustomed to examine sputa for the tubercle bacillus will not be encouraged to start that praiseworthy practice by being told the process is practically instantaneous.

Not only is a well-mounted specimen a thing of beauty (so Professor Arnold taught us, and after 20 years' storing of the slides so prepared the remainder of the proverb is true) but it is suitable to send for the inspection of others—seeing is believing—and possible to retain with the notes of the case for future reference. The lack of cover-glasses and the use of oil-immersion lenses for several reasons militate against so doing. Apart from the question of time (and that is not a vital point) the article with the correspondence has been deeply interesting and I confess to having received several (a student's phrase) "good tips."

I am, Sirs, yours faithfully,
DAVID ANDERSON-BERRY.

St. Leonards-on-Sea, Sept. 25th, 1905.

To the Editors of THE LANCET.

SIRS,—I trust you will allow me to supplement the few remarks I ventured to make on the above clinically important subject in your issue of Sept. 16th. Obviously the desideratum is quickness coupled with efficiency: that amount of quickness which is compatible with due satisfaction of the feeling of reliance in the mind of the searcher. When I quoted four and a half minutes as the requisite time in my own case I was writing not as a professional pathologist but as a practical clinical physician, imbued with the necessity of determining as definitely as possible whether certain lesions existing in patients at the time *under his own care* were or were not tuberculous. Provided such examinations can be made in *five minutes* that, practically speaking, surely is as far as it is necessary to go. It is quite possible that the professional pathologist sitting in his well-equipped laboratory may evolve a method which may require even some very much shorter time than this.

But, Sirs, I trust the time is at hand when the investigation of *all* the excreta of the body will become once more amongst the matter-of-course personal duties of every conscientious physician, and that the lazy present-day habit of deputing such observations to some perhaps distally situated professional pathologist will be amongst the disgraces of the past. And to this most desirable end any correspondence that may tend to simplify an important and very frequently called for pathological investigation and help to further the natural union of clinical observation with scientific methods will be no waste of your valuable space.

I am, Sirs, yours faithfully,
Sept. 25th, 1905. E. T.

THE ROYAL PORTSMOUTH HOSPITAL.

To the Editors of THE LANCET.

SIRS,—It may interest you to know that Mr. Henry Rundle, a member of the senior surgical staff of this hospital, made an offer to the governors to-day to build and furnish a room as a museum and medical library. This work will be carried out at the same time as the new operation theatre, the foundation stone of which will probably be laid by the mayor at the end of next month. Mr. Rundle's munificent offer was received with warm appreciation by the governing body.

I am, Sirs, yours faithfully,
Sept. 22nd, 1905. J. S. NEIL, Secretary.

THE CAUSATION OF SENILE DECAY.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 5th, p. 403, you were good enough to publish a letter of mine in which I suggested that senile decay, far from being a mere wearing out of the tissues, is in large measure the result of specific changes in the blood—that it is, in fact, a process of slow suicide. Shortly after the publication of this letter Dr. A. Lorand of Carlsbad drew my attention to a pamphlet by him, entitled "Sur les Causes de la Sénilité et son Traitement Hygiénique et Thérapeutique." I did not in my letter attempt to define what the blood changes which accompany and, as I believe, induce senility precisely are, but I threw out the suggestion that they might partly consist in an altered state of the internal secretions. Dr. Lorand argues in his pamphlet, which was published in April of the present year, and therefore some months before my letter, that senility is due to atrophy of certain glands, to wit, the thyroid, the pineal gland, the ovaries, and testis, and to the consequent diminution in the blood of the secretions peculiar to them. It will thus be seen that in the view that senility may be induced by some change taking place in the internal secretions I was anticipated by Dr. Lorand.

I am, Sirs, yours faithfully,
Wimpole-street, W., Sept. 24th, 1905. HARRY CAMPBELL.

THE BOY AND HIS SCHOOL.

To the Editors of THE LANCET.

SIRS,—The acknowledged authority of THE LANCET in the scientific world makes me value highly the honour of being noticed at all in its pages, but it also makes the shock more painful when the notice of "The Boy and his School" ends by classifying me as a fossil.[1] Apparently from a misunderstanding of the expression "lacking *human* interest" I am taken to mean that the physical sciences lack *interest*, which I do not say and am far from thinking; indeed, on p. 86, I admit that I should have preferred them for my own study, if I had been able to choose. What I do mean by "lacking human interest" may be found on pp. 63–64. I can only offer my apology for having used an expression which proves to be less commonly understood than I had supposed. Trusting that you will kindly insert this correction,

I am, Sirs, yours faithfully,
ROBERT L. LEIGHTON.

The Grammar School, Bristol, Sept. 25th, 1905.

VARICOCELE—WHAT OF IT?

To the Editors of THE LANCET.

SIRS,—In his letter to THE LANCET of Sept. 23rd, p. 923, Colonel F. Howard raised a most important question. The present attitude of the public services towards candidates who have a varicocele is illogical in the extreme. The question may be regarded from two points of view, the candidate's and the service's. Mr. C. A. Rankin Nitch and I had despatched a communication on the results of the operation from the individual's point of view within a few hours of the publication of Colonel Howard's letter. Being in the possession of the results of our inquiry, which are in entire harmony with Colonel Howard's opinion, it seemed desirable that some statement should be made, though owing to time and space we must refer readers to the original paper when it appears.

Three questions may be raised: firstly, what is a varicocele and what harm does it do? secondly, what is the effect of operations performed for its relief? and thirdly, in what way should these considerations affect the attitude of the services to this affection? A varicocele may be said to be an enlarged, and perhaps varicose, condition of the veins of the pampiniform plexus. It is not physiological as stated by the eminent authority whom Colonel Howard quotes as having taught it to be for the last 20 years. It is usually a unilateral condition, a consideration which forbids all general, and therefore bilateral, theorisations. Although it is not physiological, a varicocele need not be pathological in the gross and baneful sense of the term. It may be said to be always harmful to the testis with which it is connected and in the majority of instances equally harmless to the individual who possesses it. The consequence to the testis is of consideration to the individual but not to the service for which he is a candidate. The latter is only interested in the varicocele as it may cause so much distress as to prevent the man from doing his duty.

The second question, concerning the results of operation, can be discussed under these two heads—namely, its effect on the testis and its effect in making a man fit for work again. With regard to the individual the whole point is, "Can we save the testis by operation from the fibrotic changes which we know the varicocele will slowly produce in it?" There is no doubt as to the answer to this. No, we cannot. Mr. Nitch and I found that the operation, as it is usually performed, hastens and magnifies those changes in the testis, precipitating the very issues which the operation

[1] THE LANCET, Sept. 16th, 1905, p. 832.

was designed to avoid. From the point of view of the gland the operation has merely hastened its "decline and fall." From the point of view of the services, Can operation relieve the pain and other symptoms connected with the varicocele which make the man a useless unit? Here, again, we can give a definite answer. Yes, in the majority of cases. The services send many men to the hospitals yearly who have had no inconvenience whatsoever to undergo the operation. Mr. Nitch and I were extremely relieved to find that most expressed themselves as being none the worse for having undergone it. But there were some who suffered for the first time after it and their complaints must be on the heads of the services who exacted the sacrifice from them.

With regard to the third question, the public services should know their business much better than we as medical men can do, so that we can only advise and must not venture to dictate. Whether or not they have anything to do with such cases is their affair. If they do then we must say that they have no right to make or to advise men to undergo an operation who have never had any trouble with their varicocele. We can cure the majority of cases which *do* complain of the varicocele, so that they can have it done when that time arrives. Those whom operation does not cure are most unlikely to be of any use for active service.

To sum up: fibrotic changes will occur in the testis far more quickly when operation is done than when it is not; should the patient complain of pain, &c., operation will restore the majority to an able condition of body. On the other hand, if every case of varicocele is operated on indiscriminately, then a fair percentage will suffer permanent bodily harm locally in the testis and sometimes generally in body and mind.

There is one more point to which I would like to direct attention. In most instances the services require the operation to be done in subjects who have not reached an age when the testis and the rest of the body have attained full growth. Fibrotic changes in a fully grown testis cripple that gland slowly and physiologically do the man very little harm. But when they occur in the immature gland then, according to their degree, they will prevent that gland from continuing its development. So that it may be laid down that the younger the subject for operation the greater the damage done. The services are very wrong to insist on this operation in young subjects. When it is remembered that the testis ministers to the growth of both primary and secondary sexual characters it will be realised that a vast deal of irreparable damage can be done to a young subject by operation.

I am, Sirs, yours faithfully,

Harley-street, W., Sept. 25th, 1905. EDRED M. CORNER.

To the Editors of THE LANCET.

SIRS,—I am pleased to see in THE LANCET of Sept. 23rd the able and thoughtful letter of so high an authority as Colonel Frank Howard on varicocele. The question which he raises is one of the greatest importance to young men entering the services. Varicocele is generally considered an abnormal condition and in some way detrimental to health. I believe it is nothing of the kind but merely a provision of nature to keep in abeyance the function of the testicle when not required. It may be accepted that the activity of any organ is in proportion to the rapidity of the blood current through it. When this is increased the function is increased; when the blood flow is diminished the reverse takes place. If any canal becomes dilated or tortuous the extra friction produced retards the current flowing through it and less passes in any given time. This method of regulating the blood current is clearly marked in the sexual organs of some animals and especially so in the sheep tribe. The ram for ten months in the year has no use for the testicles; at such times they hang low, and the spermatic vein on both sides develops largely, but more on the left than on the right, and becomes very tortuous owing to relaxation of the muscles. Then with the rutting season the testicle becomes more drawn up and the dilatation of the veins greatly diminished, enabling the blood to circulate more rapidly. Careful observation will, I think, show the same thing, though to a more limited extent, in the human race. The young man who leads a quiet life is very prone to varicocele which greatly diminishes when the organ comes into regular use. Of course, if over used nature will diminish the supply of blood to rest the organ. From this cause, I believe, the varicosity of the spermatic vein will be found most marked in the celibate and the dissolute. That the Greeks did not consider varicocele a disease is shown in their sculptures where Hercules is represented with a pendulous left testicle and varicocele.

Passing from this pathological question to the practical one, What harm does a dilated spermatic vein produce? I can only say with a 30 years' experience in one of the largest hospitals that I have yet to see a case in which any real harm has resulted from this cause. For ten years as casualty surgeon at St. Bartholomew's it was my duty to see the surgical patients applying each morning, a total of many thousands a year. Scarcely a day would pass without some young men coming for a "varicocele," yet any patient of over 30 years of age applying for this trouble was a rarity. What, then, had become of the "varicoceles"? If present, they were certainly causing the middle-aged men no trouble. I always questioned the young men "why they wanted the varicocele cured." Some few would say they had "aching," just as girls will complain of their "backs," but the majority of the applicants had either been refused for the services or post-office, or thinking of getting married had been reading quack literature and made the discovery that the left testicle was "dropping" and causing "impotency." Regarding, as I do, varicocele as a perfectly natural condition in many men I should be very loth to advise operation even assuming it was absolutely harmless. This is far from being the case. I cannot recall to mind any fatal result but have known quite a number of instances where either the entire testicle had sloughed or had slowly atrophied as the result of tying the vein, the last case of this kind being only this summer at St. Bartholomew's, where a young patient lost the entire organ by sloughing a few days after the operation. For the reasons mentioned for some years I have refused to allow the operation to be done in my wards. As regards young officers, a few weeks ago I was consulted by as fine and athletic a man as could be seen. He had passed well into Sandhurst but had been rejected for varicocele. I told him I could not advise an operation and the service loses as good a soldier and fine a shot as they are likely to find. What the common soldier may do to escape duty I do not know, but that a British officer would make a varicocele the pretence for malingering is entirely refuted by Colonel Howard's experience.

I am, Sirs, yours faithfully,

HARRISON CRIPPS,

Sept. 26th, 1905. Senior Surgeon to St. Bartholomew's Hospital.

IS ALCOHOL EXCRETED BY THE SKIN?

To the Editors of THE LANCET.

SIRS,—May I ask whether the theory that alcohol is not excreted by the skin still holds good? In 1890, when home from South Africa, where as a Government and police surgeon I had numerous opportunities of making post-mortem examinations on patients who consumed large quantities of alcohol, and in whose organs (liver, kidneys, &c.) I did *not* find cirrhosis, I came to the clinical conclusion that at high altitudes and in dry climates and at high temperatures it was difficult to explain how the alcohol was eliminated unless such excretion was effected by the skin. For 10 years I was practically a teetotaler; I have never ceased to regret it.—I am, Sirs, yours faithfully,

DAVID HARRIS, J.P., M.R.C.S. Eng., &c.,
Late Medical Officer of Health.

Sherborne, Dorset, Sept. 18th, 1905.

THE SPA TREATMENT OF CIRCULATORY DISORDERS.

To the Editors of THE LANCET.

SIRS,—In 1896, when the so-called Nauheim treatment of heart disease, comparatively recently brought to the knowledge of English physicians, was provoking considerable interest in some quarters and some scepticism in others, you sent a Commissioner to Nauheim to study the subject on the spot. His report was published in THE LANCET of August 29th, 1896, p. 619. The "system" has in the interval been unduly lauded by some and unduly condemned by others. In THE LANCET of August 5th, p. 347, Dr. Leonard Williams has written a very just estimate of the value of the spa treatment of circulatory disorders, and on the whole very justly appraised the merits of Nauheim as a factor in promoting such treatment. I write "on the whole very justly" in this latter respect, for I think he has not done

full justice to the work of the late August Schott in this matter. There is no doubt that although gymnastic exercises with a view to influencing the human body and among its organs the heart were in use before his time, as Dr. Williams remarks, August Schott developed these in their application to heart disease in a thoroughly scientific manner and to his work and writings it is unquestionably due that the idea of Stokes and the work of Oertel in a much modified form have become so generally known and used as they are at present.

The report of your Commissioner was not altogether relished in some quarters, but it is gratifying to find that the conclusions come to, the dangers pointed out, and the scope of applicability of the balneological and gymnastic treatment of heart disease given in the careful paper of an English physician writing nine years later are in substantial agreement with those published in the report of your Commission. Reminded of your Commission on reading Dr. Williams's article I had the curiosity to read your report again and can find little that I should now add to or delete from it.—I am, Sirs, yours faithfully,

Sept. 23rd, 1905. YOUR COMMISSIONER OF 1896.

SIR THOMAS BROWNE MEMORIAL.

To the Editors of THE LANCET.

SIRS,—At 3 P.M. on Thursday, Oct. 19th, 1905, a service in memory of Sir Thomas Browne, M.D. (born Oct. 19th 1605, died Oct. 19th, 1682), will be held in the Church of St. Peter Mancroft, Norwich, near which he lived for many years and in which he worshipped and lies buried. Preacher, the Right Rev. Bishop Mitchinson, D.D., Master of Pembroke College, Oxford, at which College Sir Thomas Browne was educated. Should any of your readers require seats at the service we shall be obliged if they will kindly let the honorary secretary to the memorial committee know the number before Tuesday, Oct. 17th.

We are, Sirs, yours faithfully,

F. J. MEYRICK, Vicar;
FREDERIC R. EATON,
Honorary Secretary to Memorial Committee, King-street House, Norwich.

Sept 23rd, 1905.

NAKED LIGHTS IN OPERATING THEATRES.

To the Editors of THE LANCET.

SIRS,—Attention has frequently been drawn to the danger of naked lights in a theatre in which ether is being administered for anæsthetic purposes but I am of the opinion that the great undesirableness and, indeed, danger of naked lights in a theatre when chloroform or a mixture containing it is being administered are not sufficiently recognised. There is a very interesting article on this subject by Dr. Armand and Dr. Bertier in the *Revue de Chirurgie* for July. They draw attention to the fact that the administration of chloroform in a room in which coal gas is being burnt inevitably leads to the formation of "decomposition products," taking the form for the most part of phosgene gas or oxychloride of carbon. They find that a sufficiently high percentage of this substance in the atmosphere of an experimental chamber kills a guinea-pig in 15 minutes or less. They have proved by a series of experiments which they carried out on various animals that death is due not to the presence of carbon monoxide but to the toxæmia produced by this phosgene gas. Apart from their experiments, however, on the lower animals they have observed most unpleasant effects on themselves and their colleagues produced by this dangerous vapour and cite cases recorded by Mey, Zweifel, Langenbeck, and others of death following prolonged exposure to its influence. While personally I have no knowledge of any fatal effects I have for long noted the very disagreeable symptoms produced by inhaling oxychloride of carbon. They are as follows. A dry tickling cough is first noticed with flushing of the face and sometimes a desire to sneeze. An unpleasant odour of chlorine-like nature is noticed which lasts for hours and is very difficult to get rid of. Frontal headache is common, the conjunctiva becomes congested, and one has a feeling of "sand in the eye" sometimes accompanied by lacrymation. The throat if examined by means of a mirror is noticed to be congested. Some individuals complain of feeling faint but for the most part the symptoms are respiratory and gustatory. Several cases of broncho-pneumonia have been recorded. Malaise and a feeling of prostration for from 24 to 36 hours are very common results. One of the most unpleasant effects is that on the sense of taste. I recently had to work in a small operating theatre in connexion with a long emergency operation between 5 and 7 P.M. Immediately afterwards dinner was taken and the marked disturbance of the sense of taste was very noteworthy. Ox-tail soup was mawkish; chicken patties and vegetables had a marked chlorine-like flavour; claret taken from a bottle opened the night before (and then quite a good wine) had an acrid, very unpleasant flavour, while plum tart seemed so bitter and unpleasantly sharp to the pharynx in swallowing as to render it quite unpalatable. Pears and nuts all tasted of chlorine, while the post-prandial smoke afforded no comfort and could not be in any way appreciated. In a nursing home in which the theatre was warmed by means of a paraffin stove the head nurse told me that she was invariably sick after the operations. It seems, in view of these facts and of the very carefully carried out observations of Dr. Armand and Dr. Bertier, that more note should be taken of the matter for the future in hospital construction and all operating theatres lighted by electricity wherever possible, and sterilising apparatus, if heated by gas flame, should be carefully located outside the theatre. There seems little doubt that if those actively concerned in the performance of an operation and presumably in a good state of health are affected to such an extent from exposure to such decomposition products the patient, immediately under the influence of the anæsthetic, and surrounded by the vapour—*ergo fortior*—will suffer the more, and that after-troubles, vomiting, &c., put down to other causes are actually due to unnecessary exposure to a most unpleasant and dangerous atmosphere.

I am, Sirs, yours faithfully,

Sept. 28th, 1905. M.D.

VOLUNTEER MEDICAL OFFICERS.

To the Editors of THE LANCET.

SIRS,—It is not quite clear as to which examination "Surg.-Capt. Vol. Certif." in his letter in THE LANCET of Sept. 9th, p. 806, refers to, whether it is (1) the examination of volunteers as to their fitness as "fighting men," an examination which was wrongly supposed to be for "service abroad"; or (2) the examination as to the general physique of recruits who had joined within a stated time. The first examination was conducted, I believe, in every instance by volunteer medical officers; the second, the inspection of recruits, was carried out usually by the Royal Army Medical Corps officer specially detailed in the district for such duty. If it was the latter examination in which "Surg.-Capt. Vol. Certif." complains that he was "superseded" "Surg.-Capt. Vol. Certif." seems not to understand that all regular recruits in a station passed by the Royal Army Medical Corps officer for recruiting duties are also inspected periodically by this specially detailed officer, a duty which used to fall to the principal medical officer of the district. "Surg.-Capt. Vol. Certif." can therefore hardly complain that the War Office has superseded him in carrying out a regulation to which Royal Army Medical Corps officers are themselves subject.

As a matter of fact, after five years' service in the Royal Army Medical Corps, during which time I was for over two years in charge of recruiting in one of the large military stations in England, and thus had ample opportunity of seeing the material which was passed as "fit" for the Yeomanry and "service companies" by civilian medical men and Volunteer medical officers, and some four years in the Volunteers, I have come to the conclusion that in the vast majority of cases the opinion of the civilian medical man—"Volunteer certificated" or not—as to a man's fitness for service abroad or for active service is worth very little. "Surg.-Capt. Vol. Certif." complains that he has been "superseded"; in the *British Medical Journal* of this week another "Surgeon-Capt." complains that he had to do all this work for nothing and so his "*holiday*" was spoilt. Truly the War Office has a complex problem to solve when it commences, if it ever does, the adjustment of the grievances and differences of the Volunteer Force.

I am, Sirs, yours faithfully,

Sept. 11th, 1905. A. M. R.

THE EVOLUTION OF THE PURE CONSULTANT.

(FROM A CORRESPONDENT.)

AMIDST the clamour of professional reforms of all sorts—educational, ethical, and economic—certain evolutionary processes in connexion with the practice of medicine quietly pursue their uninterrupted course. One of these processes, which is very silent but quite persistent, is the splitting off from the general body of the profession of a purely consultant class.

If one were to pay attention to all that is written or spoken about medical consultations at the present moment it might be concluded that their condition was distinctly retrograde; that never before was the general practitioner more averse to seeking a second opinion or the consultant less alive to the duties and privileges of his enviable position. But this is essentially an age when every wrong is loudly proclaimed and is confidently assumed to be a new development from which our happier forefathers were free. Strained relations between general practitioners and consultants are as old as the hills and if the modern instances are more frequent this depends not upon any deterioration in human nature nor upon a lessening of our regard for professional ethics but on those advances in transit which are gradually obliterating space and making every consultant the near neighbour of every general practitioner. In spite of the prominence recently given to the grievances of general practitioners at the hands of consultants but little attention has been paid to the movement for the establishment of a purely consultant class, a movement which is of distinct and steady growth and which cannot fail to have the most beneficial results for the public as well as for all legitimate branches of the medical profession.

From time immemorial certain members of the profession have received the majority of their patients in their consulting rooms as opposed to the more common habit of visiting patients in their own homes. For some reason which is not clear from etymology this professional attendance in the medical man's rooms is generally called a consultation, the attendance upon the patient at his home being called a visit. If the modern public have any idea of what constitutes a consulting physician or consulting surgeon it is probably a medical man who has so far "got on" in practice that he can usually require his patients to come to him instead of responding to their call and at the same time is able to charge a higher fee than his brother practitioners. It appears that this view, now commonly held by the public, was the only distinction recognised by the profession itself between general practitioners and consultants until 20 or 30 years ago. About that time, however, there grew up a custom for some medical practitioners who desired to be specially regarded as consultants to refuse to visit patients in their homes unless in consultation with a general practitioner. This desirable procedure is rapidly becoming more common in all the chief centres of population and is rightly regarded by many as the chief criterion of true consulting practice. It is merely a custom of convenience and courtesy between two branches of the profession and it does not seem to have been definitely laid down as a rule of conduct by any college or society or in any code of medical ethics. It is, nevertheless, destined to spread and to have far-reaching effects, for it has proved to be the thin edge of the wedge with the proverbial strength of this mechanical device. The logical conclusion of refusing to visit patients in their own homes without the coöperation of a general practitioner is undoubtedly for the consultant to deal in a similar manner with all his patients whether he goes to them or they come to him. Some clear-thinking consultants recognised this from the first and have in the last 20 years consistently acted on the broader lines. But these men were a mere handful and it is only in more recent years that others have followed their example. There can be no doubt that when this method of consulting practice becomes widely recognised by general practitioners it will spread more rapidly even than its forerunner. For it places the two branches of the profession in an entirely coöperative instead of a partly coöperative and partly competitive relationship. Consultation must always be somewhat anxiously conceded by the man in possession if his colleague is also his occasional competitor, however honourable the consultant and however carefully the proceeding is hedged round by ethical rules to prevent the subsequent transference of the patient. It would indeed be difficult for a solicitor to build up with a light heart the reputations of the barristers whom he habitually consults in all difficult cases if he knew that these same barristers would subsequently become his most powerful competitors for ordinary practice. Yet this is the condition that has until recent years universally obtained in medical practice, and it is not too much to say that the establishment amongst medical men of the consulting custom which is so firmly established in law can only be a matter of time now that its feasibility has been demonstrated. Any movement of this sort is sure to be submitted to very critical examination. There are not wanting those who assert that the relations between patient and medical adviser are so different from those between client and lawyer that this attempt to adapt the practice of one profession to the other must fail. It is difficult, however, to see clearly what these supposed differences are. The greatest difference perhaps consists in the absence of any court to whose judgment the value of the advice of both consultant and general practitioner can be submitted. But exactly in so far as it is difficult for a patient to test officially the value of his attendant's advice does it become important for him to be able to secure, with his attendant's cordial sanction, independent expert criticism of this advice. On the other hand, it is argued that as a matter of fact it is not impossible for a client to secure the services of a barrister without the intervention of a solicitor and that for medical consultants to refuse to treat patients without the coöperation of a general practitioner would be to go beyond the official regulations of the legal profession. If there is no official regulation in law to secure coöperation between the two branches of the profession, there is certainly a custom of such universal application as to make all barristers recognise that a neglect to comply with it would entail professional failure.

It is natural that the public accustomed to command the individual attention of any member of any branch of the medical profession on the sole condition that the fee demanded is paid and often without even this condition should not at first sight have viewed this movement with favour. They had hitherto regarded the consultant as a convenient authority to whom they could turn for further advice, often without the knowledge of their usual attendants, whenever the undue length of an illness caused anxiety or when the departure from health seemed so simple that a single prescription would set it right. To be baulked in either of these enterprises is naturally annoying. The public, however, will not be slow to recognise that it is in their best interests that this change in the arrangement of medical practice is being made. For it is as true of this as of every other real medical reform that it is based on an attempt to secure the better medical service of the community. Specialisation in medicine, as in every branch of human enterprise, leads to the perfection of certain faculties in certain groups of men. It must be the object of the organisation of every profession to render these perfected faculties of its various members freely available whenever they are required and to prevent them from becoming impaired by unsuitable use. It is by no means easy to determine the particular branch of special training which will render a man best fitted to cope with a particular case of illness. Technical knowledge of disease and an intimate acquaintance with the achievements of different members of the profession are both needed to insure the selection of the ideal consultant to unravel a subtle problem of diagnosis or to carry out some intricate form of treatment. This twofold knowledge can best be found in a general practitioner constantly dealing with all classes of illness and coming into personal contact with all classes of consulting specialists. Constant coöperation between the two branches of the profession is therefore a necessity if the public are to secure the utmost advantage from the growth of specialism. Under the old *régime* such coöperation was severely checked. For a general practitioner to recommend that, in what might appear to the patient a simple case or, in fact, in any case, the advice of a man who had given special attention to the subject should be sought was exceedingly likely to lead the patient or his friends on subsequent occasions to go straight to the "fountain head" as they were pleased to call it. If the practitioner is to

exercise freely his power of choosing the right moment to seek the best further advice he must not be constantly confronted with the danger of a loss of practice from the serious competition with the consultants whose reputation he is in this way making. In other words, if the special skill and advice of the consultant are to be freely available for the general practitioner whenever he believes them to be required they must not also be freely at the disposal of every patient whose personal preference demands them.

All natural evolutionary processes are liable to press a little hardly upon certain individuals or particular classes, but the evolution of the pure consultant is a movement which shows nature at her best, forwarding the science and art of a great profession, improving the cordial relations between its two great branches and merely withdrawing from certain members of the public an imaginary privilege the promiscuous use of which is detrimental to the community at large.

NOTES ON MEDICAL MATTERS IN NORWAY.

(FROM A CORRESPONDENT.)

IN the early part of the nineteenth century the State established institutions for lepers. There were originally four—two at Bergen, one at Molde, and one at Trondhjem, all large and costly institutions. Lungegaard Hospital at Bergen, moreover, was fitted up with ample scientific apparatus, library, collections, &c. In 1866, when the number of inmates was greatest, 795 lepers were treated at these institutions. Since then the number has steadily decreased to 360 at the end of 1895, when it was found possible to close Lungegaard Hospital and Beknes Hospital at Molde as leper hospitals. Most of the lepers are now, as formerly, found in the coast provinces from Stavanger to Tromsø. Since 1897 the latter hospital has been used as a sanatorium for tuberculous patients and is fitted up with accommodation for about 60, ten of them children. A new hospital for consumption has been built at Lyster in Sogn in a well-wooded mountainous district 1600 feet above the sea. The State has further erected the State Hospital in Christiania, with medical and surgical wards, besides special wards. It is intended for patients from all parts of the country and is also a clinical educational establishment. The daily number of inmates is 376. In Christiania and Bergen the State maintains lying-in hospitals and obstetrical schools in connexion with them. The lying-in hospital in Christiania is also an educational establishment for medical students. The number of births there average nearly 1000 and in Bergen about 120. There are several sanatoriums for convalescents and neurasthenics, some among the mountains and some on the coast. Most of them are only open in the summer and are not under medical supervision.

Only those who have taken a degree in medicine at the Norwegian University are entitled to practise as medical men. The number of certificated medical practitioners is about 1070, of whom 54·4 per cent. are in the towns and 45·6 per cent. in the rural districts. Dentists are authorised after undergoing practical and theoretical tests. Their number is about 200, almost all being in the towns. Since 1893 the State has supported a polyclinic for dental diseases in Christiania where most of the students in dentistry receive instruction. About 55 midwives pass their examinations annually in the two schools in Bergen and Christiania. For purposes of obstetric aid the country is divided into midwife districts, each with its midwife appointed by the county. Vaccination is obligatory, inasmuch as the certificate of vaccination must be produced at confirmation and marriage. The country is divided into vaccination districts which generally coincide with the midwife districts. Only medical men are entitled to vaccinate but others may be authorised to do so and are called assistant vaccinators. The midwives generally act as assistant vaccinators. Of late years the vaccine used has been principally animal vaccine obtained from the Government institution established in Christiania in 1891. Male and female nurses are trained at the deacons' and deaconesses' houses in Christiania and in several associations—e.g., the Red Cross and the Norwegian Women's Hygienic Union.

At the head of the civil medical board, which is under the department of justice, there is a director who has a technical and a legal adviser at his disposition and also a staff of medical men and chemists. The country is divided into district and town practices, the holders of which have the superintendence of medical matters, attend the sick poor and the lunatics maintained at the public expense, supervise the treatment of persons suffering from epidemic diseases, &c. In every county there is a medical man as the adviser of the authorities in lunacy matters. This medical man has the chief superintendence of lunatics maintained at the public expense. In every municipality there is a board of health with a medical officer. This board attends to the sanitary condition of the place and adopts the necessary measures upon the outbreak of infectious diseases. Its decisions can only be rescinded by the King or the department of justice. For protection against the introduction of certain dangerous diseases, such as small-pox, cholera, yellow fever, and plague, a quarantine is enforced upon infected or suspected vessels. Among other measures concerning medical affairs may be mentioned the Act of June 4th, 1898, by which every corpse before burial must be seen by a medical man or by two trustworthy persons, and the Act of June 11th, 1898, by which cremation was permitted in the country.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Housing Question in Liverpool: Visit of German Experts.

Professor C. J. Fuchs of the University of Freiburg and Dr. Mewes of Düsseldorf paid a visit to Liverpool on Sept. 21st for the purpose of studying the housing question as dealt with in Liverpool. After inspecting the workmen's dwellings in the south end of the city, some of which are in course of completion and others erected, the visitors were entertained to lunch at the town-hall. They were particularly struck with the flat roofs which form part of the architecture in Upper Mann-street. These roofs afford safe and healthy playgrounds for the children of the tenants. The Lord Mayor in proposing the healths of Professor Fuchs and Dr. Mewes, warmly welcomed them to Liverpool and said that England and Germany had long been rivals but never enemies. They might best be described as messengers of health. Professor Fuchs, in reply, said that they had gained much valuable information as the result of their visit to Liverpool. Three years ago he was in Liverpool and then admired the work which was being carried on in the way of better housing. The housing reformers in Germany looked up to Liverpool for having set such an example and for dealing so well with such a difficult subject. They had not so many slums in the German towns but, on the other hand, the housing question there concerned the upper and middle classes as well as the poor. Since his visit three years ago Liverpool had made great strides in coping with the problem. Other English municipalities had succeeded in pulling down but none had succeeded in rehousing the same people again. He complimented the committee upon having refrained from erecting barracks and said it had shown that it was possible to house the poorest in the best way, one that conformed to national methods and set an example to other countries. He had been much impressed by all he had seen on that day and would not fail to let Germany know how well Liverpool had grappled with the problem. Professor Fuchs concluded by paying a high compliment to Mr. Turton, the deputy city surveyor, for his services in the cause of rehousing and said that one of the most important points in dealing with the demolition of property was to avoid creating new slums. Dr. Mewes also expressed the pleasure which the visit had afforded him.

The Liverpool Infirmary for Children.

The rebuilding of the infirmary for children is making good progress. The scheme is a comprehensive one and includes the provision of a nurses' home on the east side of Mulberry-street. The houses which stood on that site have been demolished and the subway beneath Mulberry-street connecting the infirmary on the other side of the thoroughfare with the nurses' home is partly constructed. The entire block of buildings when erected will be very imposing. Further financial aid is urgently needed to insure the complete success of the benevolent undertaking.

Health of Liverpool.

The death-rate of the city continues at a low figure—viz., 18·4 per 1000, as against 22·5 per 1000 for the corresponding

period of last year. If the present satisfactory state of things continues the record for the year will probably be the lowest ever known in Liverpool. The city is comparatively free from disease, the number of scarlet fever cases in hospital being below the average for this period of the year.

Sept. 26th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

University of Leeds Medical School.

THE session 1905–06 will commence on Monday, Oct. 2nd. On Tuesday afternoon the Right Honourable G. W. Balfour and Lady Betty Balfour will be present at the distribution of prizes and Mr. Balfour will address the students. The dinner of the medical profession of Leeds and district, which has now for many years been an annual affair, is to be held the same evening and Mr. Balfour has accepted the invitation of the committee of management to attend as the chief guest.

Leeds District Nursing Association.

The committee of this institution has issued a strong appeal for funds. These are required to meet the expense of some very necessary expansions in the way of increased accommodation and to enable the increase of work which has been undertaken to be continued. The appeal sets forth that the object of the association is to nurse the sick poor in their own homes. The present staff consists of two superintendents and 21 nurses, of whom ten are resident at the central home in Lovell-street, and the others are variously distributed at smaller nursing centres in Hunslet, Holbeck, Burley Village, Kirkstall, and Armley. Each nurse has a prescribed district within the limits of which she visits daily, and if needful twice a day, the patients in her charge, rendering them such services as require skilled care. Only those cases which are under the supervision of medical men are taken by the institution. No medicine, food, or money is supplied to the patients, but linen, water-beds, and other appliances are lent when necessary, for the use of which a small charge is usually made. The number of cases attended to in the past year has been 3362 and 76,589 visits have been paid.

Sept. 25th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Water-supply of Glamorgan.

THE rapid increase in the population of Glamorgan, which was equal to about 30 per cent. between the census of 1891 and that of 1901, due principally to the extension of operations in the coalfields, has thrown upon sanitary authorities the very difficult task of providing efficient water-supplies. Although the rainfall in the county is high, averaging in some districts as much as 75 inches yearly, great difficulties have been found in securing sites for reservoirs sufficiently near the populous districts required to be served, for if they are constructed actually upon the coal measures which are being worked there is a liability to subsidence and construction beyond the coal measures very considerably increases the cost of the undertaking. At the end of 1902 the medical officer of health of the county (Dr. W. Williams) reported at some length upon the water-supplies in the administrative county and at the meeting of the county council held on Sept. 21st it was decided to call a conference of representatives of the district councils in the county to consider the desirability of forming a water board for the county. A committee of the county council was also formed to attend the conference and was empowered to take steps to promote a Bill in the next session of Parliament. In the report referred to Dr. Williams states that some years ago the county council prepared a scheme by which water would be obtained from the Black Mountains.

The Medical Officer of Health of St. Austell.

The medical officer of health of the St. Austell rural district (Mr. William Mason) has reason to congratulate himself that he is one of the few provincial medical officers of health who are not elected for short periods and are thus liable to dismissal if they happen to offend the sanitary authorities with which they are connected. Mr. Mason was elected medical officer of health to the St. Austell rural and urban districts 25 years ago and a few years ago was appointed without reference to any specified period, the sanction of the Local Government Board being required before he could be dismissed from office. The relations of both district councils to their officer have been of the happiest until a proposal was made by the urban council to enlarge the area of the district by including within it a portion of the adjoining rural district. Upon purely sanitary grounds, and having solely in mind the sanitary advantages which would accrue to the inhabitants of the two districts, Mr. Mason advocated the extension. This action was so strongly resented by the members of the rural council that they called upon him to resign his office, and upon his failing to do so a representation was made to the Local Government Board asking the Board to sanction his dismissal. At a recent meeting of the council a communication was read in which the Board stated that sufficient ground had not been shown to justify it in acceding to the council's request to remove the medical officer of health from office.

Wiltshire County Council and District Medical Officers of Health.

The Wiltshire county council has drawn the attention of the sanitary authorities in the county to the desirability of the district medical officers of health attending meetings of the district councils and also to the facilities afforded by the county council's public health laboratory for making bacteriological examinations in cases of suspected diphtheria free of expense to the local authorities. The county council at the same time points out that copies of special reports in regard to the closing of schools and outbreaks of disease are not always sent to the county council in accordance with the requirements of the Order of the Local Government Board. The Wiltshire county council might very well follow the example of the Shropshire county council and pay the cost of copying these reports, for as a rule a medical officer of health who is also in private practice is not provided with a duplicating machine, and to write out a copy of a report for himself, one for the Local Government Board, and one for the county council, in addition to the original report for the district council, is a task which takes up a considerable amount of time.

Proposed Appointment of a Dentist to a Workhouse.

About a year ago Dr. W. W. Grosvenor was asked by the Gloucester board of guardians to inspect the eyes, ears, and teeth of the children who were under the care of the board and he has recently presented to the children's committee a report on the result of his inspections. The committee has now recommended that the children's teeth should be periodically looked after by a dentist, urging in favour of the recommendation that there were several children whose teeth required stopping and who were quite unable to masticate their food properly. One member of the committee said that the guardians were bound to do all they could to make the children healthy and strong, if only to prevent them returning to the workhouse in later years. In spite, however, of the strong arguments which were brought forward in favour of the proposal it met with so much adverse criticism, which was directed solely to the question of the initial cost, that only five of the guardians voted in favour of it and more than 30 against it.

Taunton Isolation Hospital.

A special meeting of the Taunton town council was held on Sept. 19th to consider the management of the isolation hospital. Reference has already been made to the matter in THE LANCET. Dr. H. J. Alford (the late medical superintendent of the hospital) refuted some statements made by the Taunton rural district council. A considerable discussion followed and eventually the members of the town council expressed complete confidence in the action of Dr. Alford. It was further determined to appoint, conjointly with the Taunton rural district council, an independent person to hold an inquiry into the whole subject of the general management of the isolation hospital, owing to the refusal of the Local Government Board to do so.

Sept. 25th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

The Incorporated Sanitary Association of Scotland.

THE thirty-first Congress of the Incorporated Sanitary Association of Scotland has been held during this month at Inverness, under the presidency of Dr. J. C. McVail, medical

officer of health of Stirlingshire and Dumbartonshire. In his inaugural address the President referred to the fact that it was 17 years since the association last met in Inverness. These years he described as constituting for Scotland, and especially for rural Scotland, a period of sanitary revolution alike in legislation and administration. He pointed out that in 1888 there was in Scotland a single medical man wholly engaged in sanitary work and that now every county had its medical officer and sanitary inspector, and towns so comparatively small as Paisley and Leith had the whole-time services of such officials. He then made note of some of the effects of this sanitary revolution. The published statistics available stopped short at the end of 1902 but such as they were he thought they were satisfactory. Mortality in Scotland had increased between the first and second decades after 1855, when compulsory registration was introduced. After the second decade the mortality steadily diminished, the greatest diminution being in the large urban areas which began with the highest rate. Dr. McVail thought that the sanitary revolution was by no means complete and suggested that the central authority should be placed in the same position as the English Board with regard to scientific researches in matters relating to public health, and also that the Local Government Board should have such a staff of medical inspectors as would enable it to make a complete and systematic survey of every public health area in Scotland. One of the sittings of the Congress was devoted to a discussion on the Prevention and Control of Consumption. In speaking of the various agencies at work in providing hospital accommodation for consumptives, Dr. J. T. Wilson, medical officer of health of Lanarkshire, summarised what had been accomplished in Scotland in the following manner: "(1) Through philanthropic agencies there are six institutions with 226 beds where consumptive patients are mostly admitted free of charge, but a few on easy terms, and the whole of this accommodation is kept fully occupied; (2) through private enterprise there are seven institutions with 179 beds and the whole of this accommodation is more or less fully occupied; (3) through public bodies with institutions supported by public rates special provision for consumptives has been made." Dr. A. K. Chalmers, medical officer of health of Glasgow, made an interesting contribution to the discussion on Voluntary Notification of Consumption, in which he stated that their experience in Glasgow, both as to bacteriological inquiry in regard to sputum and voluntary notification, had been disappointing. They had had ample use taken of the facilities offered from the well-to-do residential districts; they had had almost total absence of use made of those facilities in the lower class districts. Voluntary notification had left them with the impression, and with the unhappy conviction, that they were at present missing two-thirds of the cases occurring in the worst districts for want of notification and, unfortunately, it was in these poor houses that infection was so deadly.

Sept. 26th

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Philanthropic Reform Association of Ireland.

THE annual conference in connexion with the Philanthropic Reform Association was held on Sept. 22nd at Killruddery, the seat of the Earl of Meath who occupied the chair and the matter chiefly discussed was the housing of the poor in Dublin. Sir Charles Cameron said that though it was very desirable that artisans who were fairly well paid should be well housed, it must be remembered that they were not in the same position as the labourers, pedlars, and others, with scanty incomes often under 10*s.* a week. These people lived in hotbeds of infective disease and in the interests of public health it was essential to look after such places. He ventured to think that there was hardly any city in the United Kingdom in which so large an area was composed of purlieus. It was to the large proportion of the very poor residents in Dublin that the very high death-rate of the city was attributable.

Deaths of Centenarians.

The report of the Irish Local Government Board for the year ending March, 1905, appeared on Sept. 25th. Among other matters, it mentions under the heading of "Deaths in Workhouses" that during the year no less than 24 centenarians died, four of them having been reported to have reached the age of 105 years.

Outbreak of Glanders among Horses in Dublin.

The council of the Dublin Sanitary Association met on Sept. 21st and passed the following proposition:—

That the various sanitary authorities be asked whether any, and, if any, what, warnings as to the risks run by grooms and stablemen in attendance on horses affected with glanders have been issued in accordance with the terms of a communication received by them from this council in March of the present year.

The epidemic of glanders among horses in Ireland has now extended to Dublin and 200 horses there are reported to be infected. Many of them have been destroyed and the slaughter of many others has been ordered by the county council authorities. Some of the animals are the property of the Grand Canal Company and the Department of Agriculture has taken steps to provide that the Glanders and Farcy Order shall be put in force by the various local authorities through whose areas the Grand Canal Company's system extends.

Health of Belfast.

At a meeting of the public health committee held on Sept. 21st an extract from the report of the Local Government Board medical inspector, Dr. C. J. Clibborn, was read in which he pointed out that within the last few years the general sanitary condition of Belfast had greatly improved, especially in the gradual removal of the old and objectionable midden and privy system and substitution therefor of water-closets. In 1897 there were 26,620 such privies; now this number is between 5000 and 6000. Further, a large improvement has also been made by causing owners to have the backyards tiled and back passages properly paved. The condition of the dwellings of the poorer classes has also improved due to the educating influence—as regards ventilation and cleanliness—of the female inspectors. The chief sanitary defects in Belfast at present, Dr. Clibborn says, relate to the drainage of the Lower Sydenham portion and of the Greencastle district. There is also an accumulation of seaweed and filthy soaked matter on the foreshore between Whitehouse and Skegoniel Dr. Clibbon suggests that steps should be taken to remove this nuisance.

Queen's College, Belfast.

Sir Donald Currie has made an offer of £20,000 to a fund for the better equipment of Queen's College, Belfast, provided an equal amount is raised or promised before Christmas next, or £10,000 if others will contribute to an equal extent. It is hoped that the friends of the College will now make an effort so as to qualify for such a munificent gift on the part of Sir Donald Currie who is an old Belfast man.

Sept. 26th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A Good Beginning.

I HAVE several times already referred to the overcrowding of the medical profession in France, and especially in the towns. Moreover, the medical men are unfairly treated not only by the mutual aid societies but also by the law courts, for when actions are brought for the recovery of fees the amount is always reduced by the court. The medical men of Cholet have just formed a union and have inserted advertisements in the principal medical journals of France warning their professional brethren who may be invited to settle in Cholet that the town has a population of 18,000, of whom 12,000 are weavers; that there are 11 medical practitioners, not including specialists; and that a benefit society has prepared a scheme for remunerating its medical officers at the average rate of 45 centimes (4½*d.*) per consultation and 70 centimes (7*d.*) per visit, including under the latter head night visits and operations both major and minor; that in view of this unfortunate state of affairs the medical men of the town had decided to raise their fees; that promises which must necessarily be soon followed by bitter disappointment had been made to medical men who were unaware that the prospect thus offered was a mere decoy; and that this manœuvre was put into action for the purpose of preventing an equitable arrangement being made between the club members and the medical officers.

Native Practitioners in French Indo-China.

A decree by the President of the French Republic dated August 12th sanctions certain orders issued by the Governor-General of Indo-China dealing with the school of medicine of Indo-China at Hanoi, the object of this school being to train natives as medical men and midwives. The course of medical study lasts four years and the examination held at the end of the fourth year entitles successful candidates to receive diplomas as native practitioners. A second decree authorises the practice of medicine by natives in the colony of Indo-China. Native practitioners (both medical men and midwives) are placed under the control of the *administrateurs chefs de province* and in medical matters are under the supervision and control of the *directeur du service de santé* (principal medical officer). They must comply with all the regulations drawn up for the proper working of the department to which they belong, they must give medical attendance (vaccination included) to natives free of charge, and must obey the provisions of the law of 1892 relating to the practice of medicine, this law having been by the decree of August 12th made applicable to Tongking, Annam, Cambodia, and Laos.

The International Congress on Tuberculosis.

Two months ago I made a brief reference to the holding of this Congress and I now supply some further details. The Congress will meet in Paris at the Grand Palais from Oct. 2nd to 7th. The President of the Republic will preside at the opening ceremony which will take place at 2 P.M. and will be attended by the French and the foreign delegates. The meeting ought to be a great success, for, in reply to the invitations sent by France, 33 countries have appointed national committees. France itself has been divided into areas represented by regional committees which will submit to the Congress the statistics for their several districts. The work of the Congress will be divided into four sections—namely, (1) Medical Pathology (President, Professor Bouchard); (2) Surgical Pathology (President, Professor Lannelongue); (3) Protection of Children (President, Professor Grancher); and (4) Protection of Adults (Presidents, Professor Landouzy and M. Paul Strauss, senator). The four sections will meet simultaneously, each in its own rooms, not far from one another, so as to be easily accessible to the members. Each section will hold seven meetings. There will be several discussions on special subjects (*rapports*) and 250 papers will be read. The whole of Oct. 5th will be devoted to visiting homes, sanatoriums, and other similar institutions outside Paris. In Paris visits will be made to dispensaries, hospitals, sanatoriums, the Pasteur Institute, and gardens for the working classes, the various details of these visits being matter of arrangement between the four sections. On Oct. 7th, the closing day, the Congress will meet in the large hall of the Sorbonne, when the business will include voting on motions proposed by the sections and deciding in what year and in what country the next meeting of the Congress will be held. On Oct. 2nd there will be a general reception by Dr. Hérard, the President of the Congress, at the Hotel Continental. During the week there will be a soirée at the Palace of the Elysée after a dinner at which the President of the Republic will entertain 120 official delegates representing foreign Governments, French provinces, and Paris. There will be a reception by the Paris municipal council at the Hôtel de Ville. On Oct. 7th there will be a grand farewell banquet. Readers of papers and speakers at the meetings must be ordinary members paying a subscription of 25 francs. Papers, the exact title of which, together with a summary 12 lines in length, must have been sent to the general secretary by Sept. 20th, will appear on the programme of the Congress, and printed *résumés* will be distributed to the members before the meeting. Members of the Congress will receive the following publications:—A volume containing 46 addresses delivered in discussions on 15 questions of primary importance; a summary of the 46 addresses in three languages (German, English, and French) for distribution before the first meeting of the Congress; a guide giving full information as to the prevention of tuberculosis in France; a catalogue of the Tuberculosis Museum and the International Exhibition in the Grand Palais open to visitors during the whole of October; and, finally, a volume containing the Transactions of the Congress. Members are entitled to reductions of 50 per cent. on the fares of all French railways and of 30 per cent. on steamboat fares.

The International Congress of the "Gouttes de Lait."

The International Congress of the "Gouttes de Lait" will be opened in Paris on Oct. 20th and will extend over the 21st. The "gouttes de lait" have been mentioned in THE LANCET on several occasions. It will be remembered that they are establishments at which milk for the use of young children is supplied to parents in humble circumstances either free of charge or at a nominal price. The Minister of the Interior has consented to occupy the position of honorary President of the Congress. The acting presidents are Dr. Variot and Dr. Léon Dufour and the secretaries are Dr. Paul Roger, 39, Rue de Berry, Paris, and Dr. Paul Grasset. The subjects proposed for discussion are as follows: Fresh Milk, Sterilised Milk, Natural Milk, and "Modified" Milk in the "Gouttes de Lait"; Methods of Sterilisation, including Pasteurisation, Soxhlet's Process, and Commercial Processes; Conveyance of Milk to, and Distribution of it in, Large Towns; Gratuitous Supply of Milk and Sale of it at Reduced Prices in the "Gouttes de Lait"; and in conclusion the Feeding of Healthy Suckling Infants and also of those Suffering from Atrophy. Papers must not require more than ten minutes for reading, and in the discussions each speaker will only be allowed five minutes. Discussions on the following subjects have been arranged: The History of Infants' Milk Depôts in Great Britain, introduced by Dr. George F. McCleary, medical officer of health of the metropolitan borough of Battersea; "Gouttes de Lait" considered as Fields for the Systematic Observation of Children's Diseases, introduced by Dr. Variot of Paris; Infantile Scurvy and the Sterilisation of Milk, introduced by Dr. Martinez Vargas of Barcelona; the Philanthropic Organisation of "Gouttes de Lait," introduced by Dr. Léon Dufour of Fécamp; "Gouttes de Lait" and the Municipalities, introduced by Dr. Gourinaud of Brest; the Prevention of Rickets by "Gouttes de Lait," introduced by Dr. Saint-Philippe of Bordeaux; and, finally, the Establishment of "Gouttes de Lait" in Connexion with Dispensaries for Sick Children, introduced by Dr. Leroux.

Sept. 25th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Cholera in Germany.

ALTHOUGH cholera has nowhere as yet attained alarming proportions in Germany the sanitary authorities are actively making preparations against a possible extension of the disease. The sanitary stations on the Vistula and its affluents have been increased in number and the system has been introduced on other rivers. A large station with a permanent staff of medical men has been established at Copenick, a town on the river Spree some miles from Berlin, and a very strict inspection of every passing craft is made there in order to prevent cholera patients from entering the Berlin waterways. In Berlin itself the river police may be seen conveying medical men in their motor boats and steam launches to visit boats and barges, the placid occupants of which wonder at the careful attention bestowed on them by the Government. Up to Sept. 21st there were 227 cases with 78 deaths reported. Both the medical and the lay press are meanwhile drawing attention to the state of matters in Russia. It would seem that the Russian Government has either taken no steps to ascertain whether cholera existed within its territory or has concealed the prevalence of the disease. It is even announced that the Russian police have dispersed a meeting of medical men assembled to discuss cholera matters. It is stated by the *Berliner Klinische Wochenschrift* that the official journal of the Imperial German Health Office, which is published by that office and therefore contains only official intelligence, reported in its issue of July 19th that according to a communication received from the Russian Government no case of cholera had occurred but that in a suspected case the bacteriological examination proved negative. A similar note was inserted in the issue of July 5th, whilst the August number does not contain a word regarding cholera notified by the Russian Government. The Russian official journal, in its August issue, even expressly states that no case of cholera had occurred since April 21st. The *Berliner Klinische Wochenschrift* rightly asks what steps the German Foreign Office will take to protect Germany against

the consequences which may result from the Russian authorities disregarding the existing international treaties on the subject of epidemic disease, and it is remarkable that a French medical journal, the *Semaine Médicale*, also joins with the German papers in severely blaming the action of our Eastern neighbour. In these circumstances the suggestion that medical attachés should be appointed at the various German embassies to inform their Government as to the health of the countries to which the ambassadors are accredited ought very soon to be carried into effect, beginning with the embassy at St. Petersburg.

The Transmission of Relapsing Fever.

According to the *Deutsche Ostafrika Zeitung*, a German East African journal quoted by the *Vossische Zeitung*, Professor Koch has succeeded in ascertaining the mode of transmission of relapsing fever. He has found that, just as in Texas fever, the spirilla of relapsing fever are conveyed from patients to other persons by a tick—the ornithororus Larigni. These ticks when they bite patients swallow the spirilla, which they subsequently introduce into the blood of healthy persons. This species of tick is found throughout the German possessions in East Africa. The disease is contracted especially in the inns and shelter-houses along the caravan roads of the colony. The governor of the colony has therefore ordered his military and civilian subordinates to abstain from entering these shelter-houses together with, or immediately after, natives. Professor Koch, who will probably make another long stay in Africa, is busy with experiments the object of which is the removal of the ticks by chemical agents from the floors of dwellings. His researches on the subject of relapsing fever date back to a period many years ago and were begun by him as a district medical officer when he succeeded in inoculating monkeys with the spirillum.

Sept. 23rd.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The Approach of Cholera.

GREAT and extensive precautionary measures are being taken by the "Conseil Supérieur de Santé" of the Turkish metropolis to ward off the possible invasion of the country by the epidemic of cholera. Since 1893, when the scourge raged in Constantinople and in the provinces with terrific force, the medical men and sanitary authorities of the Ottoman capital have learned many a lesson of warning and vigilance. There is no more now, as there used to be, in matters concerning public health, that nonchalant easy-going manner of dealing with things that distinguishes the oriental trend of mind. Thus the Supreme Sanitary Council ordered the construction of barracks at the stations of Zibefdjé and Mustapha-Pasha, where all the passengers coming from Europe and showing any suspicious symptoms will be subjected to strict medical supervision. On the arrival at the chief station of Stambul everyone has to undergo a medical examination. Strict precautions are also taken at Cavac, the entrance station on the upper Bosphorus near the Black Sea. Those passengers who come from Hamburg and the German province Posen, and who have already undergone a medical examination before entering Turkish territory, will have to submit their dirty underclothing to a thorough disinfection on their arrival at Constantinople. The railway carriages and the cabins of the steamers occupied by these passengers will also be disinfected. The latter will, besides, be submitted to a five days' medical supervision at their homes. At Constantinople itself, where hygienic and sanitary arrangements are still far from being very satisfactory, all is being done to remove every source of danger. Streets are being cleaned in the early morning under the inspection of specially appointed men. Chloride of lime is being extensively used to disinfect public privies, stables, &c.

A New Hospital for Syphilitics.

At Angora in Asiatic Turkey a new hospital will be constructed for the treatment of venereal and syphilitic diseases. The plans of the establishment have already been approved by the Government and the funds necessary for the upkeep of it have been secured by the Sanitary Council of the State. The expense of the construction is estimated to amount to 149,000 piastres. The annual amount for the maintenance of the establishment will be 150,000 piastres. The hospital will have two wards, a male and a female one. A superintendent with an efficient staff of medical attendants will be attached to it.

The Circumcision of Mahomedan Children.

One of the curious acts of generosity which the Sultan Abdul-Hamid exercises on such festive occasions as, for instance, the last anniversary of his accession to Othman's throne, is the circumcision of poor Mahomedan children at the expense of his private purse. During the last two weeks about 3000 children were thus circumcised at the Padishah's hospital, Hamidié. Every one of them received also, after the performance of the religious operation, nice presents from the Sultan as well as from the inmates of his harem. The operation was performed by 20 medical men in coöperation with hodjas of the Islam. The usual age at which Mahomedan children are circumcised is 13 years but this varies greatly according to circumstances. It very frequently happens that Mussulmans are subjected to the religious operation at the age of 20 years and even later.

A High Distinction for a Medical Man.

The distinguished Greek physician of Constantinople, Dr. Zambaco Pasha, has been decorated by the Sultan with the Grand Cordon of the Osmanié in brilliants in recognition of his eminent services to Turkey.

Sept. 19th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Canadian Medical Association.

THE thirty-eighth annual meeting of the Canadian Medical Association was held in Halifax, Nova Scotia, from August 22nd to 25th. The president was Dr. John Stewart of Halifax whilst Dr. George Elliott of Toronto acted as general secretary. This is the third time that a meeting of Canada's national medical organisation has been held in that city, the last occasion being in 1881. Then 53 persons were present; this year there were more than four times as many. Then some were present who had journeyed 1300 miles; now some were present who had journeyed 4000 miles. This shows that the medical profession in Canada does not stop at magnificent distances. The presidential address was delivered by Dr. John Stewart, the address in surgery by Mr. Francis M. Caird of the Royal Infirmary of Edinburgh, the address in medicine by Dr. D. A. Campbell of Halifax, the address in gynæcology by Dr. Howard A. Kelly of Baltimore, U.S.A., and the address in ophthalmology by Dr. J. W. Stirling of Montreal. All these were of a high order and received the deserved applause of the assembled members. The most important item of practical medical politics as it concerned the Canadian medical profession dealt with was the question of reorganisation. Discussion on this led to the appointment of a special committee with Professor McPhedran of the University of Toronto as chairman. One member was appointed from each of the provinces of the Dominion of Canada and this special committee made an interim report suggesting complete reorganisation of the Canadian Medical Association on the lines of the British Medical and American Medical Associations, with probably city, county, and provincial branches, incorporation, permanent membership, and the publication of an association journal. This committee was authorised to continue its labours and to report as fully as possible at the next annual meeting to be held in Toronto at the same time as the meeting of the British Medical Association. The formal opening of the meeting took place on the afternoon of August 22nd, when proceedings were commenced with prayer by the Rev. President Forrest of Dalhousie University. Following that reverend gentleman his honour Lieutenant Governor Jones formally welcomed the visiting delegates in a felicitous speech on behalf of the province of Nova Scotia. Then his worship the Mayor of Halifax extended a cordial welcome on behalf of the corporation of that city. Next the president of the Nova Scotia Medical Society, Dr. H. A. March of Bridgewater, Nova Scotia, read an address of welcome from the Medical Society of Nova Scotia, this latter society standing as hosts to the national medical organisation. This over the President delivered the annual presidential address, one of the best in the history of the organisation. Succeeding him one of the prominent and older

practitioners of Halifax, Dr. D. A. Campbell, delivered an address in medicine on the History of the Medical Profession in the Province of Nova Scotia. Subsequently to this the meeting divided each day into surgical and medical sections, when a great deal of technical matter was disposed of. On the morning of the last day there took place a very important and interesting discussion in obstetrics. The particular subject dealt with was the Management of the Puerperal State. The discussion was opened by Dr. Thomas Walker of St. John, New Brunswick, was continued by Dr. H. L. Reddy of Montreal, who was followed by Dr. Albert A. Macdonald of Toronto, Dr. F. R. Eccles of London, Ontario, Dr. M. A. Curry of Halifax, and Dr. McIntosh of Pugwash, Nova Scotia. This discussion was practical, animated, and profitable. The nominating committee brought in the following report which was received and adopted:—President: Dr. Alexander McPhedran, Professor of Medicine in the University of Toronto, Toronto. Vice-Presidents: Prince Edward Island, Dr. H. D. Johnson, Charlottetown; Nova Scotia, Dr. G. Carleton Jones, Halifax; New Brunswick, Dr. Emery, St. John; Quebec, Dr. H. S. Birkett, Montreal; Ontario, Dr. J. D. Courtenay, Ottawa; Manitoba, Dr. S. P. Prowse, Winnipeg; North-West Territories, Dr. H. G. McKid, Calgary; and British Columbia, Dr. R. E. McKechnie. Local secretaries: Prince Edward Island, Dr. Simpson, New Glasgow; Nova Scotia, Dr. J. R. Corston, Halifax; New Brunswick, Dr. J. A. Scammill, St. John; Quebec, Dr. Ridley McKenzie, Montreal; Ontario, Dr. Harold Parsons, Toronto; Manitoba, Dr. J. R. Davidson, Winnipeg; North-West Territories, Dr. J. Hislop, Edmonton; and British Columbia, Dr. W. H. Sutherland, Revelstoke. General secretary: Dr. George Elliott, 203, Beverley-street, Toronto. Treasurer: Dr. H. Beaumont Small, Ottawa. Executive council: Dr. W. P. Caven, Dr. Albert A. Macdonald, and Dr. F. Le Maitre Grasett, Toronto. Toronto was agreed upon as the place of meeting in 1906, at the same time as the meeting of the British Medical Association. From a social standpoint the meeting was an unqualified success. The men in Halifax never knew when they were doing enough for the visiting delegates. All welcomed Mr. Caird of Edinburgh with a warm and a cordial welcome and were pleased that he had come so far to deliver the address in surgery.

The First Necropsy in Montreal.

The *Montreal Medical Journal* is responsible for the following:—"In the description in 'Hakluyt's Voyages' of the travels of Jacques Cartier is found the following, which describes the earliest reported autopsy performed in this city. It took place in 1535, when the winter was passed in Hochelaga and many of the crew died of an epidemic disease. 'That day Philip Rougement, borne in Ambroise, died, being 22 yeares olde, and because the sickness was to us unknowen, our Captaine caused him to be ripped to see if by any means possible we might know what it was, and so seeke meanes to save and preserve the rest of the company. He was found to have his heart white, but rotten, and more than a quart of red water about it; his liver was indifferent faire, but his lungs black and mortified, his blood was altogether shrunke about the heart, so that when he was opened great quantitie of rotten blood issued out from about his heart; his milt (spleen, Ed.) toward the back was somewhat perished, rough as if it had bene rubbed against a stone. Moreover, because one of his thighs was very blacke without, it was opened, but within it was whole and sound, that done, as well as we could, he was buried.'"

Changes in the Asylum Staffs of Ontario.

Dr. Daniel Clark, for many years medical superintendent of the Toronto Asylum for the Insane, has resigned owing to advanced age and has been succeeded by Dr. C. K. Clarke, medical superintendent of the Kingston Asylum, who has been promoted. Dr. Edward Ryan, associate professor of clinical medicine in Queen's University, Kingston, Ontario, has succeeded the latter in the superintendency of the Kingston Asylum. Dr. Charles E. Hickey of Morrisburg, Ontario, has been appointed superintendent of the Coburg, Ontario, Asylum, to replace Dr. E. McNicholl, removed. Dr. John Williams of Lisle, Ontario, has been appointed superintendent of the Hospital for Epileptics at Woodstock, Ontario.

Sept. 21st.

THE Cardiff corporation has decided to purchase at a cost of £480 a motor ambulance to be used by the police for the removal of persons injured by accidents.

Medical News.

UNIVERSITY OF DURHAM.—At examinations for the degree of Bachelor in Medicine held in September the following candidates satisfied the examiners:—

FIRST EXAMINATION.

Elementary Anatomy and Biology, Chemistry, and Physics.—Pass List: Oscar Frederick Don Airth, College of Medicine, Newcastle-upon-Tyne; Edmund Hudson, M.R.C.S., L.R.C.P., Victoria University; and James Alwin Colville Scott, College of Medicine, Newcastle-upon-Tyne.

Chemistry and Physics.—Harriett Amelia Rachel Apps, London School of Medicine for Women; Wilfred Barkes, Cyril Carlyle Beatty, John George Campbell, B.A., Harold Alexander Cooper, Ivor Stanley Gabe, Patrick Albert Galpin, Cyril Gray, and John Pritt Jackson, College of Medicine, Newcastle-upon-Tyne; Ernest Percy Martin, St. Thomas's Hospital; Ruth Nicholson, College of Medicine, Newcastle-upon-Tyne; Thomas Alfred Peel, Royal College of Surgeons, Ireland; and Robert Raffle, Harold Widdrington Sykes, and George Huntly Wood, College of Medicine, Newcastle-upon-Tyne.

Elementary Anatomy and Biology.—Francis Frederick Trevor Hare and Hamish Malcolm Macgregor, College of Medicine, Newcastle-upon-Tyne; Theresa de Gournay Miller, London School of Medicine for Women; Lennox Macdonald Stewart, University College, London; and Dorothea Mary Tudor, London School of Medicine for Women.

SECOND EXAMINATION.

Anatomy, Physiology, and Materia Medica.—Second-class Honours: Charles Frederick Morris Saint, Henry Glendinning Davison, and Francis Aidan Robinson, College of Medicine, Newcastle-upon-Tyne. *Pass List:* Kenneth Bruce Allan, College of Medicine, Newcastle-upon-Tyne; Charles Martin Brown, Victoria University; Isaiah Hodgkinson, Edward Pierce Llewelyn Hughes, Hedvig Christina Kellgren, Frank Widowfield Melvin, Charles James Neilan, Friederike Rahtkens, and Basil Taylor, College of Medicine, Newcastle-upon-Tyne; and Eric Frushard Waddington, Yorkshire College, Leeds.

THIRD EXAMINATION.

Pathology, Medical Jurisprudence, and Public Health.—Second-class Honours: Herbert Max Levison, College of Medicine, Newcastle-upon-Tyne. Pass List: Harold Henry Blake, St. George's Hospital; George Edward Peckett Davis, George Reginald Ellis, and Elizabeth Niel Havelock, College of Medicine, Newcastle-upon-Tyne; Herbert Fletcher Joynt and Edward Percival Hearne Joynt, Guy's Hospital; Charles Gordon Kemp, St. Bartholomew's Hospital; Jessie Margaret Murray, London School of Medicine for Women; and Ernest Lacey Markham, William Roilin, James Wilkie Smith, Leslie Henry Walker, and George Walker, College of Medicine, Newcastle-upon-Tyne.

FOREIGN UNIVERSITY INTELLIGENCE.—*Breslau:* Arrangements are being made for the erection of a medico-legal institute.—*Budapest:* Dr. E. von Grosz has been promoted to the chair of Ophthalmology in succession to the late Professor Schulek.—*Erlangen:* Dr. Leonhard Hauch has been recognised as *privat-docent* of Dermatology.—*Marburg:* Dr. Ludolf Brauer has exchanged the chair of Systematic Medicine for that of Clinical Medicine.—*Munich:* Dr. Theodor Paul has been offered the chair of Pharmacy in succession to the late Professor Hilger.—*Naples:* Dr. Galeotti has been appointed Extraordinary Professor of General Pathology.—*Padua:* Dr. Belmondo has been appointed Extraordinary Professor of Mental Diseases.—*Pisa:* Dr. Cesaris-Demel has been appointed Extraordinary Professor of Pathological Anatomy.—*Vienna:* The chair of Medicine vacated by the death of Professor Nothnagel has not yet been filled and Dr. Wechsberg, the first assistant in the clinic, will temporarily discharge the duties of the professorship.—*Zürich:* Dr. Zanger has been promoted to the chair of Forensic Medicine vacated by the death of Professor Wyss.

DONATIONS AND BEQUESTS.—Under the will of Councillor George Gilhespy of Gateshead a sum of £10,000 is bequeathed to the Gateshead Dispensary, to be applied as the governors of that institution shall in their sole discretion think best. A portion of the money is to be devoted to the relief of cases coming from the factories and works in Gateshead or its immediate neighbourhood.—The honorary secretaries of the King Edward Hospital Fund for London have received a sum of money and securities to the estimated value of £10,000 to be retained as capital, being part of a bequest by the late Miss Marianne Frances Hasker, of St. Leonards, to be devoted to charitable institutions at the absolute discretion of her executors.—Subject to certain conditions, Mr. R. B. Blaize of Lagos, West Africa, has left by will £1000 for the erection of a hospital at Abeokuta and a similar sum for the erection of a hospital at Oyo in five and eight years' time respectively.—By the will of Mrs. M. H. Hawtrey £6000 are to be held in trust for the life of one legatee, and are then to be paid to the

North-Eastern Hospital for Children, Hackney-road, to found and to endow as far as possible a convalescent home to be known as "The Madeline Hawtrey Convalescent Home." The residue of her estate, subject to various legacies and to a one life interest, is left to the North-Eastern Hospital for Children, also for the endowment of a convalescent home.—Sir Charles Cunliffe Smith has by will bequeathed £1000 to the London Hospital.—Mr. T. Drake, Winchester, has made a donation of £1000 to the Royal Hants County Hospital, Winchester, for the purpose of endowing a bed in memory of his wife, Mrs. E. S. Drake.

THE MIDDLESEX HOSPITAL.—The extensive alterations in the Cancer Research Laboratories of this hospital are now completed. Dr. W. S. Lazarus-Barlow is the director of the department.

RAILWAY AMBULANCE WAGONS.—The *Engineer* of Sept. 22nd contains the following paragraph: "By way of supplementing the breakdown wagon the Administration of the Belgian State Railways is reported to have projected a new ambulance wagon, one of which has already been constructed, containing hammocks for the injured, litters, an operating table, and a supply of chemicals."

GUY'S HOSPITAL APPEAL.—The treasurer of Guy's Hospital has acknowledged a sum of £2584 13*s.* contributed by the members of Lloyd's towards the present appeal of the hospital. The sum of £53,500 has now been subscribed towards the capital sum of £100,000 required and the governors earnestly ask that the balance of £46,500 to complete the appeal may be subscribed before the close of the year.

CENTENARIANS.—The *Times* of Sept. 25th states that the death is announced of Mrs. May Fitzgerald, of Rock Lodge, Glin, co. Limerick, at the age of 114 years. During the greater part of her life she enjoyed perfect health and up to a year ago was able to sew and to knit without the aid of spectacles. Our contemporary also says that Miss Hannah Hearn, of Mill Farm, Mapledurham, near Reading, celebrated the 100th anniversary of her birthday on Sept. 20th. She was for 30 years matron of the Denmark hill Grammar School and many of the old boys visited her to congratulate her, among them being Sir Edward Letchworth.

THE WEST OF SCOTLAND CONVALESCENT SEASIDE HOMES.—The annual meeting of donors and subscribers of these homes has just been held and it is gratifying to note that the report of the year's work in the institution is satisfactory. The income from all sources has been £8449 2*s.* 10*d.*, and the total expenditure for the year has been £7920 13*s.* 9*d.*, leaving a balance in the bank of £528 9*s.* 1*d.* During the year 4934 persons were admitted and 203 were refused admission. Those refused consisted chiefly of chronic invalids and persons who required active medical treatment. A considerable number were suffering from pulmonary tuberculosis and a few had been suffering just before the date of application from infectious ailments.

THE CARE OF SCHOOL CHILDREN.—In the annual report of the medical officer of health of Bristol (Dr. D. S. Davies) for 1904, which has just been issued, it is stated that there are 65,000 children in the elementary schools of Bristol and that there is a serious need for their medical inspection. Dr. Davies adds that many American and some continental cities have made arrangements to this end. The London education authority has a medical officer and is preparing a scheme of inspection. Blackburn, Leicester, and Liverpool are also moving in the matter and, as Dr. Davies says, "it would not only be a wise measure from a health point of view but would also save considerable pressure upon the rates if Bristol took action."

THE TREATMENT OF DISTRICT MEDICAL OFFICERS.—At the meeting of the Bridgwater board of guardians, held on Sept. 20th, the clerk reported having written to one of the district medical officers conveying to him the guardians' decision to pay him the sum of £10 per annum in addition to his usual salary, for added duties through part of another district being transferred to the medical officer, for medical and vaccination work. The medical officer in a letter stated that he would undertake the duties but thought that the remuneration was inadequate and could not accept it. The house committee, which had considered the matter, recommended the guardians to give the medical officer notice to terminate his engagement. After a long discussion the matter was referred to the committee.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

CARDEW, HENRY J., M.R.C.S., L.R.C.P., M.A. Cantab., has been appointed Senior House Surgeon to the Royal South Hants and Southampton Hospital, Southampton.

COLLUM, ROWLAND W., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Anæsthetist to St. Mary's Hospital, Paddington.

CRIPPS, V. A., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Newport and Monmouthshire Hospital.

DAVIS, HENRY, M.R.C.S. Eng., has been appointed Senior Honorary Anæsthetist to St. Mary's Hospital, Paddington.

DE JONG, E. M., M.R.C.S., L.S.A., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Lymm District of the county of Chester.

DISHINGTON, T. M., M.B., Ch.M. Glasg., has been appointed Outdoor House Surgeon to the Maternity Hospital, Glasgow.

EVANS, RICHARD DAVID, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer of Health of the Llandilo (Carmarthenshire) Urban District.

FISHER, THEODORE, M.D. Lond., M.R.C.P. Lond., M.R.C.S., has been appointed Pathologist at the North-Eastern Hospital, London.

HOPKINS, C. L., M.B., B.C. Cantab., has been appointed Medical Superintendent of the York City Asylum.

HUTCHINSON, J. R., M.B., Ch.B. Vict., D.P.H. Vict., has been appointed House Surgeon to the Liverpool Eye and Ear Infirmary.

KNIGHT, HUBERT ASTLEY, M.B., Ch.B. Edin., L.R.C.P. & S. Edin., L.F.P.S. Glasg., D.P.H. Edin. and Glasg., has been appointed Assistant House Physician at the Bristol Royal Infirmary.

LUCAS, JOSEPH JOHN SCAMMELL, B.A., M.D. Lond., L.R.C.P., M.R.C.S., ha been appointed Honorary Pathologist to the Bristol Royal Infirmary.

PAIRMAN, JAMES C., M.B., Ch.B. Glasg., has been appointed Indoor House Surgeon to the Maternity Hospital, Glasgow.

PATRICK, HOWARD H., M.B., Ch.M. Glasg., has been appointed Outdoor House Surgeon to the Maternity Hospital, Glasgow.

SHEPPARD, ARTHUR LEWIS, M.B., B.S. Durh., has been appointed Junior House Surgeon at the Bristol Royal Infirmary.

SMITH, LIONEL SHINGLETON, L.R.C.P. Lond., M.R.C.S., has been appointed Casualty Officer at the Bristol Royal Infirmary.

STEVENSON, HOWARD, M.B., B.Ch. R.U.I., F.R.C.S. Irel., has been appointed House Visiting Surgeon to the Women's Department of the Ulster Hospital, Belfast.

TOWNROE, EUGENE DUNBAR, L.R.C.P. Lond., M.R.C.S., has been appointed Resident Medical Officer at the Winsley Sanatorium.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN ROYAL INFIRMARY.—Assistant Surgeon.

BARMING HEATH, MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £175 per annum, with quarters, attendance, &c.

BODMIN, CORNWALL COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £135 per annum, rising to £155, with board, lodging, &c.

BRADFORD CORPORATION WATERWORKS.—Resident Doctor. Terms £200 per annum, with quarters.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £30 per annum, with board, residence, and laundry.

CAPE TOWN, SOMERSET HOSPITAL.—Two Junior Resident Medical Officers. Salaries £150 per annum, with quarters and rations.

CENTRAL MIDWIVES BOARD.—Teachers of Pupil Midwives.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—Two House Physicians (male) for six months, with board, washing, and residence. Salary at rate of £30 per annum. Also Pathologist. Salary 100 guineas per annum.

DUDLEY THE GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £40 per annum, with residence, board, and washing.

FARRINGDON GENERAL DISPENSARY, 17, Bartlett's-buildings, Holborn-circus, E.C.—Resident Medical Officer. Salary £120 per annum, with apartments, coals, gas, and attendance.

HAMPSTEAD GENERAL HOSPITAL.—Two Honorary Assistant Medical Officers.

HARTSHILL, STOKE-UPON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL.—Senior House Surgeon. Salary £100 per annum, with apartments board and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium £25.

HOSPITAL FOR WOMEN, Soho-square, W.—House Physician for six months. Salary £30.

HUDDERSFIELD INFIRMARY.—Junior House Surgeon. Salary £50 per annum, and washing.

LEITH HOSPITAL.—Assistant Ophthalmic Surgeon.

LONDON HOSPITAL, Whitechapel, E.—Physician.

LONDON LOCK HOSPITAL, Soho.—House Surgeon to the Male Hospital. Salary £80 per annum, with board, lodging, and washing.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Third Honorary Anæsthetist.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY. Resident House Surgeon. Salary £80 a year, with rooms, attendance, and board.

MACCLESFIELD, CHESHIRE COUNTY ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £175, rising to £200, with rooms, board, and washing.

MANCHESTER ROYAL INFIRMARY.—Resident Surgical Officer, unmarried. Salary £150 per annum, with board and residence.

MARGATE, ROYAL SEA BATHING HOSPITAL.—Resident Surgeon.

NAPSBURY, ST. ALBANS, HERTS, MIDDLESEX COUNTY ASYLUM.—Fourth Assistant Medical Officer. Salary £160 per annum, with board, lodging, and washing.

NEWCASTLE-UPON-TYNE WORKHOUSE, ETC.—Assistant Medical Officer. Salary at rate of £150 per annum, with apartments, rations, and washing.

RAINHILL, NEAR LIVERPOOL, COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, increasing to £350, with apartments, board, and washing.

ROYAL DENTAL HOSPITAL, Leicester-square.—Morning House Anæsthetist. Honorarium £50 per annum.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—(1) House Physician; (2) Casualty House Surgeon; (3) Second Anæsthetist; (4) Dental Surgeon; (5) House Physician (female); (6) House Surgeon (female); (7) Assistant Anæsthetist (female).

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Assistant Surgeon.

ST. THOMAS'S HOSPITAL.—Assistant Surgeon.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—DREADNOUGHT HOSPITAL, Greenwich.—House Physician. Salary £65 per annum. House Surgeon. Salary £65 per annum. Junior Resident Medical Officer. Salary £40 per annum. At the BRANCH HOSPITAL, Royal Victoria and Albert Docks.—Senior House Surgeon. Salary £100 per annum. House Surgeon. Salary £50 per annum. With board, residence, and washing in each case.

STOCKPORT UNION, STEPPING HILL HOSPITAL.—Resident Assistant Medical Officer. Salary £130, rising to £150, with apartments, rations, &c.

THROAT HOSPITAL, Golden-square, W.—House Surgeon. Stipend £50 per annum, with board, residence, and laundry.

WAKEFIELD, WEST RIDING ASYLUM.—Assistant Medical Officer. Salary £140, rising to £160, with board, lodging, washing, &c.

WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary at rate of £120 per annum, with rooms, gas, coal, and attendance.

WISBECH, NORTH CAMBRIDGESHIRE HOSPITAL.—Resident Medical Officer, unmarried, for six months. Salary £100 per annum, with rooms, attendance, &c.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £:00 per annum, with board, lodging, and washing.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £120 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

BROWN.—On the 2nd September, at The Hermitage, Alipur, Calcutta, the wife of Major E. Harold Brown, M.D., M.R.C.P., I.M.S., of a son.

BUCHANAN.—On Sept. 25th, at Harefield, Middlesex, the wife of Major J. B. Buchanan, R.A.M.C., of a daughter.

BUNDEY.—On Sept. 19th, at Honor Oak-road, Forest-hill, the wife of H. Marchant Bundey, M.B., C.M., of a daughter.

JACKSON.—On Sept. 21st, at Radcliffe-on-Trent, the wife of Arthur M. Jackson, M.D. Oxon., Medical Superintendent of Notts County Asylum, of a daughter.

MURRAY.—On Sept. 24th, at Apsley, Stockport, the wife of Robert A. Murray, M.D., of a son.

ROWE.—On Sept. 19th, at Woodborough road, Nottingham, the wife of W. T. Rowe, M.D. B.S. Lond., of a son.

TIBBITS.—On Sept. 23rd, at Jury-street, Warwick, the wife of Hubert Tibbits, M.B., of a son.

WARING.—On Sept. 22nd, at Fort Rowner, Gosport, the wife of Captain A. H. Waring, R.A.M.C. (née Salmond), of a son.

MARRIAGES.

GLOVER—HARTLEY.—On Sept. 20th, at the parish church, Doncaster, Thomas Anderson Glover, M.D., to Dora, daughter of C. Mandall Hartley, J.P., Hall Gate.

POOLEY—LEE.—On the 26th of September, at St. Michael and All Angels, Chiswick, by the Rev. P. M. Herford, rector of Christ Church, Leith, N.B., assisted by the Rev. J. Cartmel Robinson, vicar, John Milnes Pooley, M.R.C.S., L.R.C.P., of Nettlebed, Oxon., second son of the late Rev. Richard Pooley and Mrs. Pooley of Queen Anne's grove, W., to Grace Eveline, eldest daughter of W. J. Lee, Esq., of Bedford Park.

SMITH—HARDY.—On Sept. 23rd, at Christ Church, Upper Norwood, Captain Lionel Fergus Smith, R.A.M.C., to Mabel Constance, only daughter of Major William Eversley Hardy, late Royal Artillery.

DEATH.

VINCENT.—On Monday, Sept. 25th, at Sebert, Wanstead, Essex, Mary, the wife of Ralph Vincent of Harley-street.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SURGICAL OPERATIONS IN PRIVATE HOUSES.

THE following article has been sent to us by a correspondent who is not a medical man but is engaged in literary pursuits in a large city at a considerable distance from London. We think that it deserves publication, as it may interest many of our readers to know how patients and their families look on the details preliminary to a surgical operation in a private house, and also because a nurse by the exercise of some tact can do much to allay the apprehensions caused by the preparation of an operation table and the unexpected opening of bedroom windows for the purpose of ventilation. There was in the original a paragraph on the latter subject but we have omitted it.

WHY MY MOTHER WAS NERVOUS AT THE OPERATION.

My mother was nearly 78 years of age when she decided to allow her left eye to be operated on for cataract. People thought that it was very plucky of her to face such an operation at her advanced age. But, indeed, my mother did not quite realise what it was that she had made up her mind to undergo. She, like many other people, thought that cataract was a sort of scale which covered the eyeball, and that the operation for its removal consisted merely in picking off this scale with a lancet. She fancied that the oculist would come some morning before she was out of bed, and bend over her, and pick off the cataract, and that there would then be an end of the matter.

It was arranged that the operation should be performed on a particular Wednesday morning at 9 o'clock by Dr. Oculus Jones, the eminent specialist. The nurse, who was a tall and capable-like young person named Brown, arrived on the Tuesday evening about 6 o'clock.

Immediately after her arrival Nurse Brown put the patient to bed. About eight o'clock Dr. Jones himself called to see if everything was in proper train and I then thought that our household would now be allowed to settle down into quietness in preparation for the event of the morrow.

But that pleasing anticipation was not destined to be realised. As I sat in the dining-room between the hours of eight and nine I heard divers disquieting sounds in the next room, which was my mother's chamber. It seemed as if tables were being hauled about and then being scrubbed. An average spring-cleaning was nothing to the turmoil which assailed my ears on this September evening. After three-quarters of an hour of this sort of diversion there was silence. I went into my mother's room and there a suggestive and not very reassuring sight met my gaze. A long table covered from end to end with a ghastly white cloth stood in the middle of the floor.

"Good gracious, nurse," I burst out, "it looks as if my mother's leg was going to be cut off."

"We could cut off a leg quite well on that table," Nurse Brown answered with professional calmness.

I felt that this performance was premature. The operation was not to be till nine o'clock next morning and if the nurse had got up at six she would have had ample time to make her preparations, but I did not think that there was any need now to discuss this matter with her. The mischief had been done, for although my mother did not take any part in the short conversation that passed between the nurse and myself I could see quite well that she was depressed and agitated. Between 1 and 2 A.M. I went downstairs to see how my mother was and found her fully awake.

"I'm so glad to see you," she gasped out as I entered the room; "I feel as if I would die of exhaustion. If I had known there was to be anything like this I would never have consented to have the operation. I had no idea it was to be such an undertaking as this."

I gave my mother some brandy and water which revived her considerably and I tried to soothe and cheer her, a task which was rather difficult. On coming downstairs again, before 8 o'clock, I found her apparently quite calm but depressed.

"If you had not come down through the night I think I should have died," she said.

Dr. Jones and his assistant arrived punctually at 9 o'clock and I retired to the dining room to wait the result of the operation. After a time Dr. Jones came in and said, "Well, it's all over, and well over, I think, but I was afraid at one point in the operation that it was going to be spoiled. Your mother moved a little. She was very nervous."

It was on the tip of my tongue to answer, "No wonder she was nervous, after such a wretched night as she had," but I did not want to begin to discuss this question in the first moment of relief that the operation was over. I took an early opportunity, however, of asking the nurse if it was not a mistake to make all the preparations for the operation the night before. "It was Dr. Jones's orders," she answered in a decided tone. My opinion was that she had either misunderstood Dr. Jones's directions or else that he had not specifically told her that her scrubbings and rubbings were to be done the night before, and two or three days after the operation Dr. Jones, on one of his calls, gave me an opening for letting him know about this incident. Referring to the operation he said in

what seemed a tone almost of complaint, as if he had not got a proper chance of showing his professional skill, "I did not think that your mother would have been in such a nervous condition. She seemed so cool and brave before."

"Can you wonder that she was nervous?" I burst out. "The night before the operation, just when she was going to sleep, the nurse begins to haul about tables and scrub all her utensils and then covers the table with a ghastly, suggestive looking white cloth. Can you be surprised that after all this disquieting performance going on before her eyes my mother was utterly put off her sleep? And, I fancy, you do not consider a sleepless night a very good preparation for an operation, especially when the patient is nearly 78 years of age?"

Dr. Jones listened to my speech with a slight smile. But he did not make any answer. I could not make out, from his expression, whether he had really given definite orders that Nurse Brown was to make all her preparations the night before, or whether it was merely that he was tacitly taking the blame himself of the nurse's misunderstanding or mistake.

What struck me about this incident was, that if it was a typical instance of its kind modern surgery may sometimes show a surprising disregard of the feelings and nervous apprehensions of the patient and great ignorance of the physical effects which may result from such disregard, especially when the patient is a woman and aged.

THE TREATMENT OF URTICARIA.

To the Editors of THE LANCET.

SIRS,—I should feel obliged if any of your readers could advise a puzzled practitioner as to the best treatment for an intractable case of urticaria which has resisted all the usual methods of treatment. The patient is a plump, middle-aged, active lady with no organic disease. The menstrual periods are a little irregular at times. The patient is 45 years of age and married and has had five children. There is no history of gout or syphilis. The patient has been carefully dieted and sugar has been excluded; inunction and alkaline and other medicines have been administered and massage resorted to, but so far with no improvement after six or seven months' varied treatment. The irritation comes on chiefly at night time and frequently lasts for two or three hours after midnight. Any hint as to treatment will be gratefully tried by a

Sept. 25th, 1905. PUZZLED PRACTITIONER.

THE MEDICAL ENTENTE CORDIALE.

To the Editors of THE LANCET.

SIRS,—During the medical visit to Paris in May a concert was given at the Automobile Club and amongst many interesting items on the programme were some very charming French verses by Monsieur Jean Robiquet which were recited as a welcome to the visitors at the beginning of the evening. As some of my colleagues may not have been fortunate enough to have been there to hear this "A Propos" I thought you might be good enough to bring it to their notice and I have been making a poor attempt to render it into English.

With my most humble apologies to Monsieur Robiquet,

I am, Sirs, yours faithfully,

LEONARD MARK, M.D. Durh.

Oxford-terrace, Hyde Park, W., Sept. 5th, 1905.

NOTE.—Diafoirus and Purgon are the two physicians in "*Le Malade Imaginaire.*" *Poquelin* was *Molière's* real name, the latter being the one he assumed when he took to the stage.

A PROPOS.	APROPOS.
Messieurs, excusez-nous ... Notre patron Molière,	Your pardon, gentles all. ..... Those days are past
Avec une ironie un peu trop cavalière,	When Molière, our master much revered,
A jadis—sans égard pour vos prédécesseurs—	With irony too keen, and scant regard
Traité Diafoirus et Purgon de farceurs.	For those who earlier wore the doctor's gown,
Par bonheur pour la médecine	Ordained that Diafoirus and Purgon
Ces docteurs au jargon plaisant	Of clowns should play the part. But happily the art
Qui vous assassinaient en Latin de cuisine,	Of medicine has survived his gay contempt.
N'avaient rien de commun avec ceux d'à présent.	Those doctors, who of old with jargon quaint
Leur savoir s'arrêtait au siècle d'Hippocrate,	Killed us in Latin fit alone for cooks,
Parfois, ils confondaient le cœur avec la rate,	No kindred own with doctors of to-day.
Et, pour guérir un mal têtu,	Their little knowledge had been handed down
Lorsqu'on les appelait à l'aide,	From Hippocratic times, and oft mistakes
Ils n'apportaient d'autre remède	Were made between the human heart and spleen.
Que l éternal bouillon pointu.	And if perchance from megrim you should suffer
	One only remedy they had to proffer:
	Repeated douching of your sigmoid flexure
	With a diluted soap-and-water mixture.
Autres temps, autres mœurs. De conquête en conquête,	Old times, old manners. Science such strides has made,
La science moderne a fait tant de progrès	From conquest on to conquest hurrying,
Que, ce soir, Poquelin—s'il était de la fête—	That were our good friend Poquelin here to-night,
Viendrait vous exprimer lui-même ses regrets,	Playing his part in these festivities,
Et, voyant l'illustre ambassade	He would himself regret these pleasantries,
Qu'un peuple très savant délègue parmi nous,	And, seeing this illustrious embassy
Il s'écrierait: "Messieurs, je veux être malade	Sent from a land where Science holds her sway,
Pour l'unique plaisir d'être soigné par vous!"	He would exclaim: "Would, sirs, I might be ill
	Merely to be the subject of such skill!"
Mon médecin (un bon, pas un de chez Molière!)	My doctor, who's not one of Molière's crew,
M'a raconté que, la saison dernière	Has told me how our travellers from France
On fit, en Angleterre, aux voyageurs français	Received last year in England an ovation,
Une réception triomphale.....Je sais	How the Cecil Hotel one festive night
Qu'on but à leur santé d'innombrables bouteilles,	Was all ablaze with electric light,
Que le Cecil-Hôtel s'illumina pour eux	How passed the toast and counter toast
Et que, trois jours durant, un monde de merveilles,	Till many a bottle gave up the ghost.
Grâce à Sir Broadbent, défila sous leurs yeux.	And countless marvels during those three days,
On leur fit admirer la beauté familière	Thanks to "Sir Broadbent," passed before their eyes.
Des hôpitaux anglais dont le monde est jaloux,	The homely comfort of their hospitals
Ces palais où les murs inondés de lumière	Called forth much praise—the envy of the world.
Semblent dire à la mort: "On n'entre pas chez nous!"	It seemed as if their wards with daylight filled
Dans ces grandes maisons qui leur ouvraient leurs portes,	Cried out on Death: "Thou shalt not enter here!"
Ils virent des tournois d'illustres bistouris,	They saw in some of these great palaces
Tandis que les sisters et les nurses accortes	The champions of British surgery
Souriaient galamment aux docteurs de Paris.	Enter the lists with sterilised blades;
Enfin, après trois jours d'inoubliable fête,	Their part to heal, not wound;
A quitter la Tamise on dut se résigner.	Sisters and nurses trim, the while
Mais on pouvait partir, l'alliance était faite:	Alert and gay, with many a smile
Deux grandes nations venaient de la signer.	For our doctors, moving round.
	At length those never-to-be-forgotten days
	Were over, and the Thames was left behind.
	No matter! The alliance had been made
	By two great nations it had just been signed.
Et depuis, leurs savants, les plus fameux du monde,	And ever since, united heart and mind
Unis étroitement par le cœur et l'esprit	These scientists have laboured to assuage
Poursuivent en commun la recherche féconde	"The ills that flesh is heir to." Striving both,
Du philtre bienfaisant qui soulage et guérit. . .	With minds alert and still determination,
— Consacrant de nouveau cette heureuse harmonie,	Seeking the bubble incubation
Puisqu'aujourd'hui, Messieurs, vous traversez la mer,	Even in the test-tube's broth.
Apportant à Pasteur, notre immortel génie,	Wherefor, good Sirs, as you have crossed the sea
L'hommage fraternel de votre grand Lister,	To consecrate this harmony anew,
Soyez les bienvenus sur la terre de France!	Bearing great Lister's homage to the shrine
Entre nos deux pays il n'est plus de détroit,	Of our immortal Pasteur, we acclaim
Et nous vous recevons, Princes de la Science,	Your presence on the soil of France with joy!
Comme le grand Paris a reçu votre Roi!	Our hearts have bridged the Straits, and you to-day,
JEAN ROBIQUET.	Princes of Science, we are welcoming
	As our great Paris late received your King!

DEATH IN JUDICIAL HANGING.

To the Editors of THE LANCET.

SIRS,—I have read with interest the letter from "Enquirer" in THE LANCET of Sept. 16th, p. 868. With regard to his question as to whether it is possible to diagnose dislocation of the neck without dissection I should be inclined to think that in the vast majority of cases, at any rate, it was possible. It is, however, more with regard to what he says about instantaneous death that I wish to speak. He says that in some cases the heart's action and the respiratory movements continue for several minutes after the drop and that therefore "death was by no means instantaneous." But is he not confusing the question of the death of the individual, as that term is understood, with the death of the various organs and tissues? A frog's heart, as we know, can be kept beating in a watchglass for hours after its removal from the body, but "Enquirer" would hardly argue that therefore the frog was still alive. Although after an execution

the man's heart still beats this is no evidence that at the moment of the drop he did not receive a shock that rendered him instantly unconscious and incapable of recovery, and surely that is all that matters in certifying that death was instantaneous. In the other use of the term as applied to all the individual cells of the body there probably never was or could be an instantaneous death.

But, now, Sirs, if you will allow me, I should like in a few words to plead a cause which I have had very much at heart for many years and which arises out of the subject of judicial hanging.

While the law with regard to capital punishment remains, and while society, therefore, still decrees that for its own sake and safety a man's life may become forfeit to the State, could we not use that life to some good end instead of wasting it at the common hangman's hands? A man condemned to death should have the option of having his sentence commuted if he were willing to submit himself to some simple pathological experiment, and I have not the slightest doubt that he would accept this chance of life as an alternative to hanging. Think for a moment what this would mean. At present we are wandering in the dark, seeking vainly for the light which these experiments alone could give. For instance, is bovine tubercle communicable to man? The question could be for ever set at rest by a few direct experiments. Or, again, take cancer. Is this catching from man to man? and what is its cause? During recent years the use of antitoxins has broken the ground in a field of treatment before undreamt of; at present we can only experiment with these on animals and the results we so obtain must be accepted cautiously, for they are liable to the errors of all reasonings from analogy. If we could study disease in the laboratory of the human body we might with confidence look forward to almost endless possibilities in the future. And, after all, what I would try upon convicted murderers is nothing more than nature is doing around us every day to people who are innocent of any crime. Direct experiment on man is what we want, and where could better subjects for such experiments be found than from among those whose lives are forfeit to the State and who themselves are willing to undergo the test?

Lastly, and this is a point I do not wish to press too closely here, there is the chance that this scheme would give to the criminal himself, for if he has taken one man's life he might in this way be the means of saving hundreds. And for the rest, for those other poor condemned who through no fault of their own are suffering from sickness and disease, it would hold out hope that by the proper unravelling of nature's secrets they might be restored again to happiness and health, and have the death sentence which at birth was passed on all alike at least commuted for a time.

I am, Sirs, yours faithfully,

Bath, Sept. 17th, 1905. PRESTON KING, M.D. Cantab.

THE NOTIFICATION OF DIPHTHERIA.

To the Editors of THE LANCET.

SIRS,—I should be glad of your opinion *re* the following case. A notifies a case of diphtheria (a child), the clinical and bacteriological evidence being perfectly clear. He informs the parents and urges isolation until free from infection, probably about a month. The medical officer of health tells the parents that there is not the slightest doubt about the diagnosis and gives instructions for isolation. The child's father, making it convenient to doubt the diagnosis owing to the expense which prolonged isolation would incur and the upsetting of their holiday, dismisses A and calls in B and C independently, who pronounce that it is not diphtheria. They saw the child *when the clinical evidence of the disease (membrane, &c.) had disappeared and they neglected to make a bacteriological examination.* In a fortnight from the onset of the illness the father removes the child and travels by train without the sanction of the medical officer of health and without notifying to the railway company. On arrival home the medical officer of health there makes an independent examination; takes a swab of the throat with a positive result. Ought the urban district council and the railway company to prosecute? In view of a recent successful prosecution in the North London police court, reported in the last issue of THE LANCET, would a conviction be probable? In the event of the council declining has the Local Government Board any power to compel it? I am, Sirs, yours faithfully,

Sept. 23rd, 1905. LEX.

*** We comment upon this matter in an annotation.—ED. L.

THE PROGRESSIVE MEDICAL ALLIANCE.

ON Sept. 23rd Talbot Bridgwater, "medical specialist"; Lionel Paton Holmes, "doctor's assistant"; and William Edward Shackell, surveyor, were charged at Westminster police-court with forgery and conspiracy, and at the same court on Sept. 25th a woman giving the name of Elizabeth Foster, "a possessor of medical diplomas not in that name," was also charged with the same offence and with being concerned with the three men before mentioned. Holmes is the same man who was tried at the Central Criminal Court in February for uttering a forged cheque, in the course of which trial Bridgwater gave evidence. The jury disagreed at the former trial but Bridgwater in his evidence said that he carried on business as the Progressive Medical Alliance at 59, Oxford street. On the present occasion he was arrested with Holmes at 59, Oxford-street. The present arrests were made in consequence of information which had been given by a convict now undergoing a term of penal servitude.

THE CORKING OF MEDICINE BOTTLES.

To the Editors of THE LANCET.

SIRS,—It is not a general custom, but I find that in several large institutions and hospitals it is the custom for messengers and patients when fetching their medicines to be compelled to cork their own bottles. Particularly in the case of the dispensaries the messengers are children of 7 to 14 years of age. For these children to be handed bottles of medicine containing, perhaps, large doses of morphine or other poisons, liniments, lotions, and various staining, astringing, or more or less caustic applications and be told to cork their bottles themselves seems to me to be a ridiculous and dangerous procedure. Every medical man and every dispenser whom I have so far spoken with condemns the practice and agrees that the proper corking of the bottle is an essential part of the dispenser's duty. To expect a mere child properly to cork up a bottle is an absurdity and absolutely dangerous when it contains strong solutions of carbolic acid, nitrate of silver, or such a thing as liniment of iodine. That the corks may be removed from their bottles on handing them in is a different thing and to save trouble may be done without objection. It is certain that all medical men dispensing for themselves or having their medicine dispensed for them at home try to cork their medicine bottles properly; all chemists do it, most institutions which have thought about the matter also do their duty to the patients in this respect, but others do not. Probably in those institutions where this laxity prevails it is done without the knowledge of the medical staff, and a little publicity through your columns may bring about its removal.

I am, Sirs, yours faithfully,

Sept. 24th, 1905. M.D.

AMBULANCE LECTURES.

To the Editors of THE LANCET.

SIRS,—I have been asked to hold some classes on ambulance work. If you or any of your readers could tell me of a good useful book on the subject I should feel much obliged.—I am, Sirs, yours faithfully,

Sept. 24th, 1905. E. G.

*** There are so many books upon ambulance work that we do not think we can recommend any particular one, but if our correspondent will apply to the St. John Ambulance Association, St. John's Gate, Clerkenwell, they will supply him with literature and schedules for the giving of a course of ambulance lectures.—ED. L.

P. F.—The notification that the post of district medical officer or of medical officer to a workhouse is vacant is regulated by Article 156 of the Consolidated Poor-law Order of 1847; other appointments also are under similar conditions. The order says: "No appointment to any of the offices specified in Article 153 shall be made under this order unless a notice that the question of making such appointment will be brought before the board, has been given and entered on the minutes at one of the two ordinary meetings of the board next preceding the meeting at which the appointment is made, or unless an advertisement giving notice of the consideration of such appointment shall have appeared in some public paper by the direction of the guardians at least seven days before such appointment is made." It will be seen that under the above regulation it is not necessary to advertise the fact that an election will take place if the other condition mentioned is complied with, although, no doubt, it is usual and as a rule desirable to do so in order that the best man available may be obtained for the post.

Poor-law Medical Officer.—We can only reiterate in other words what we have said already—that the fact that the medical man who has attended a workman has received no order to enable him to claim a fee from the guardians does not seem to us to help him to prove that the workman's employer undertook to pay for the services rendered. At the same time if our correspondent disagrees the county court is open to him and the question is one of fact upon which a judge or jury may possibly take a different view from that which we think probable.

Medicus.—A medical practitioner qualified in this country cannot practise in the Netherlands without being also qualified in the Netherlands. For this purpose it is necessary to pass the medical examinations of one of the universities. With regard to Belgium, our correspondent is advised to apply to the Belgian consul, stating his qualifications. The consul's name and address are F. H. Londers, Esq., 29, Great St. Helens, London, E.C.

The Origin of Life.—We have received a communication with this title to which the author has omitted to append his name and address.

Enquirer.—Our correspondent is referred to our answer to "E. G." above.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received: *Liverpool Daily Post, Surrey Advertiser, Presbyterian, Belfast News Letter, Oldham Standard, Westminster Gazette, Newmarket Journal, Yorkshire Post, Notts Guardian, Nuneaton Chronicle, Aberdeen Journal, Burnley Gazette, Australasian Medical Gazette, American Register,* &c.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 28th, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. in Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 22	30·04	E.	...	96	64	51	55	57	Raining
,, 23	29·84	E.	...	91	60	55	51	56	Dull
,, 24	29·70	E.	...	91	60	50	51	53	Fine
,, 25	29·63	N.E.	0·01	64	57	50	52	53	Overcast
,, 26	29·75	N.	0·39	73	58	51	51	53	Overcast
,, 27	29·70	E.	0·14	66	58	52	52	54	Overcast
,, 28	29·70	E.	0·05	104	63	50	51	52	Fine

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.).

TUESDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (4th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.).

THURSDAY (5th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.). Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.).

FRIDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.). Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (7th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

WEDNESDAY (4th).—OBSTETRICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Dr. Galabin. Short Communications:—Surg.-Capt. J. C. Holdich-Leicester: A Case of Ectopic Gestation which apparently Ruptured Twice.—Mr. H. J. Paterson: A Case of Extra-uterine Fœtation. Paper:—Dr. H. E. Spencer: A Case of Carcino-sarcoma Uteri.

FRIDAY (6th).—WEST KENT MEDICO-CHIRURGICAL SOCIETY (Royal Kent Dispensary, Greenwich-road, S.E.). 8.45 P.M. Annual Business Evening. Clinical Cases.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (2nd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. C. Fox: Clinique. (Skin.) 5.15 P.M. Prof. H. Marsh: Some Chips from a Surgical Workshop.

TUESDAY (3rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies street, W.C.).—4 P.M. Dr. G. A. Sutherland: Clinique (Medical.) 5.15 P.M. Dr. F. J. Smith: Jaundice, its Meaning.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Dr. Shuter: Anæsthetics. 4.30 P.M. Dr. Abraham: Skin Diseases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. Collier: Local Lesions of Spinal Cord—Anatomy.

WEDNESDAY (4th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. A. H. Tubby: Clinique. (Surgical.) 5.15 P.M. Dr. G. H. Savage: Dangerous Delusions.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—3 P.M. Mr. Bidwell: Intestinal Surgery.

THURSDAY (5th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. A. H. Tubby: Surgical Diseases of Children.

FRIDAY (6th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, (22, Chenies-street, W.C.).—4 P.M. Mr. S. Stephenson: Clinique. (Eye.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Dr. Shuter: Anæsthetics. 4.30 P.M. Mr. Bidwell: Intestinal Anastomoses.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. Collier: Local Lesions of Spinal Cord—Diagnosis and Treatment.

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